Ethnographic Study of Nutrition and Diet as it Relates to the Health and Well-Being of Native Hawaiian Kūpuna (Elders)

A DISSERTATION SUBMITTED TO THE GRADUATE DIVISION OF THE UNIVERSITY OF HAWAIʻI AT MĀNOA IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF

DOCTOR OF PHILOSOPHY

IN

NURSING

MAY 2018

By

Kamomilani Anduha Wong

Dissertation Committee:

Merle Kataoka-Yahiro, Chairperson
May Kealoha
Joseph Mobley
Francisco Conde
James Davis

Keywords: Native Hawaiian Kūpuna, Nutrition, Diet, Health, Well-Being, Older Adults

DEDICATION

This dissertation is dedicated to my grandmother, Elizabeth Kaniu Opupele Ruis who instilled in me to remember who I am as a Native Hawaiian, my roots and connection to my ʻohana, this land of Hawaiʻi I call home, and the Native Hawaiian people. She would say, "Be haʻahaʻa (humble) in your ways, but strive to achieve excellence in life, your studies, and in helping others. Honor ke akua and honor your ʻohana".

This dissertation is also dedicated to kūpuna from the past and present that have gone on this journey with me. I honor these kūpuna and I am grateful for their willingness to share their manaʻo (wisdom, knowledge) to help better the lives of others.

To kūpuna of the past and present, we look forward to the future with hope for what is to come for Native Hawaiians and their health and well-being. Imua!

ACKNOWLEDGEMENTS

I would like to acknowledge and thank my advisor and chairperson of my Dissertation Committee, Dr. Merle Kataoka-Yahiro for her support and mentorship that is unparalleled to anything I have experienced on my academic journey. The many hours, months, and years that she has dedicated to helping me achieve success not only in academics, but also in my personal walk through life. I have been blessed to have been under her tutelage as I was provided opportunities to interact with volunteering at the National Kidney Foundation of Hawai‘i, writing and publishing manuscripts, attending and presenting at conferences, and helping to plan an international conference all while working on my dissertation research. She inspires, motivates, and exemplifies nursing excellence.

I would also like to acknowledge my Dissertation Committee members. The Dissertation Committee members are: Dr. May Kealoha, Dr. Joseph Mobley, Dr. Francisco Conde, and Dr. James Davis. I am very grateful for their continued support, advice, and words of encouragement as I trekked through my PhD journey. This has been a challenging, but amazing experience. I am most thankful that they were willing to be present and support me to the end.

Mahalo to the community leaders and site contact persons who assisted with my Dissertation research. I am grateful to Puni Kekauoha, Adrienne Dillard, Cappy Solatorio, Aunty Carlotta Kidder, and Yonette Nakamura for their support. Mahalo to all kūpuna that participated in my study.

Mahalo to my family members who encouraged and supported me on this endeavor: my husband- Everett, my mom and dad-Rhonda and Manuel Anduha, sister-Mahealani, brother-

Pomaikaʻi, brother-in-law-Jason, sister-in-law-Kapuahau, nieces-ʻĀnelalani and Kaiolohia, and my mother and father in-law-Lynette and Eric Wong. Thank you to my dear friend Dale who has been there every step of the way. Thank you to my friends who were there for support with a listening ear: Julaine, Jolina, Jan, Riki, Tami, Verna, Tamlyn, and Jovie. To the aunties and uncles at Kaneohe Adventist church for the support and prayers. To Aunty Paula for those outings for tea and a break from my studies. To the Wong ʻohana and Oshiro ʻohana for their love and support. To the many health care professionals that have helped me through this process. To Ms. Ann Ito for supporting those who were not able to advocate for themselves and their needs.

I have been blessed and I give praise to the Lord for his love, guidance, and never leaving my side through this journey. I know this is part of the plan and I look forward to what is ahead of me.

I can do all things through Christ who strengthens me. Philippians 4:13

ABSTRACT

Background: Though Native Hawaiian kūpuna are faced with multiple social and health disparities, some are thriving into their later years of life. There is a gap in the literature regarding Native Hawaiian kūpuna who are 65 years and older and their nutrition and diet as it relates to their health and well-being.

Purpose: The purpose of this study was to explore nutrition and diet as it relates to the health and well-being of Native Hawaiian kūpuna in Hawai‘i from a cultural context.

Sample: Sample included 21 self-reported Native Hawaiian kūpuna, between 65 to 88 years of age, comprised of 13 females and eight males. They were all community-dwelling residents of the State of Hawai‘i.

Setting: Two sites on the island of O‘ahu were the Papakōlea Community Park and Center and a church in Waimānalo. The third site was a church on the island of Hawai‘i in Waimea.

Method: The methodology used was a focused ethnographic approach. Data was collected via observations, field notes, and face-to-face interviews. Data analysis included descriptive statistics and thematic analysis.

Results: Coding and thematic analysis led to six categories: (a) healthy person, (b) good health, (c) daily routine, (d) food choices/preferences, (e) Native Hawaiian cultural values, traditions, and practices, and (f) key to living well. Implications for future research to address the health and well-being of Native Hawaiian kūpuna include: (a) exploration of the perception of kūpuna regarding nutrition, diet, health, and well-being through their lifespan and (b) testing intervention programs in nutrition and diet within a Hawaiian cultural context.

Keywords: Native Hawaiian Kūpuna, Nutrition, Diet, Health, Well-Being, Older Adults

TABLE OF CONTENTS v

LIST OF TABLES

CHAPTER 1

INTRODUCTION

Native Hawaiians have a rich history embraced in culture, tradition, and language. Their lifestyle and values are deeply rooted in a system that ensured sustainability of the land, the people, and the "Hawaiian" way of life. However, this balance shifted with the arrival of Westerners. These pivotal events have changed the landscape and Native Hawaiians forever. Currently, Native Hawaiian kūpuna (elders) have faced many struggles that affected their nutrition and diet as it relates to their health and well-being.

Background

McCubbin and Marsella (2009), report that the 1959 Statehood Admissions Act of Hawai'i defined a Native Hawaiian as "a descendant of the aboriginal people who, prior to 1778, occupied and exercised sovereignty in the area that now constitutes the State of Hawai'i" (p. 375). According to Ka'opua, Braun, Browne, Mokuau, and Park (2011), "Native Hawaiians are descendants of the aboriginal peoples inhabiting the Hawaiian archipelago prior to western contact in 1778 and exercising sovereign governance prior to the 1892 overthrow of the Hawaiian Kingdom by the United States" (p. 1).

In modern times, the definition of a Native Hawaiian is "a member or descendant of the indigenous Polynesian people of the Hawaiian Islands" (www.thefreedictionary.com). Native Hawaiian identity and health are connected to the respect of ancestors as an "integrated model for how to live life" (McMullin, 2010, p. 95). Connecting and remembering the past, acknowledging the "healthy Hawaiian ancestor" as an image to inspire and motivate will lead to preservation of the Hawaiian lifestyle and culture (McMullin, 2005).

According to historical accounts and books, people from Tahiti and the Marquesas came and settled in Hawai‘i over a thousand years ago. They traveled to and from the islands via double-hulled canoes. As they settled permanently in Hawai‘i, they became known as Hawaiians or Kanaka Maoli (Dunford, Andrews, Ayau, Honda, & Williams, 2013, pp. 32-33).

Since 1997, the U.S. Office of Management and Budget has tasked the U.S. Census Bureau with compiling data with the addition of two categories: “Native Hawaiian and Other Pacific Islander” and “Some Other Race”. U.S. citizens were also able to identify with more than one race (U.S. Census Bureau, 2012). In the 2010 U.S. Census, there were over 1.3 million individuals residing in the State of Hawai‘i (Office of Hawaiian Affairs: Native Hawaiian Data Book, 2015). In the U.S., there were 527,077 Native Hawaiians (U.S. Census Bureau, 2012). In Hawai‘i, there were a total of 289,970 Native Hawaiians. The Native Hawaiian kūpuna 65 years and older comprise 21,119 individuals or 10.8% of Hawai‘i’s population (Office of Hawaiian Affairs: Native Hawaiian Data Book, 2015).

Table 1. 2010 U.S. Census Data

Total Population in the U.S.	308,700,000
Total Population in Hawai‘i	1,360,301
Total Native Hawaiian Population in the U.S.	527,077
Total Native Hawaiian Population in Hawai‘i	289,970
Total Native Hawaiian Population 65 years and older in Hawai‘i	21,119

Source: (U.S. Census Bureau, 2012)

In 1984, the Office of Hawaiian Affairs conducted a population survey in Hawai‘i of the Native Hawaiian population by blood quantum. There were 8,244 pure (full-blooded) Native

Hawaiians and 200,232 part Hawaiians. The total number of pure Native Hawaiians 65 years and older was 1,736 individuals (Office of Hawaiian Affairs, 1986). Blood quantum was identified by self-report. For children, the blood quantum was obtained for each parent, added and then divided by two to calculate blood quantum (Office of Hawaiian Affairs, 1986). If we calculate and add those who would be 65 to 94 years of age from the population survey, we would have 4,894 pure, full-blooded Native Hawaiians and 42,786 part Hawaiians in Hawai‘i today. However, the 2010 U.S. census reports only 21,119 Native Hawaiian kūpuna 65 years and older have survived to the present time (less than half the calculated number).

Table 2: Distribution of the Native Hawaiian Population in Hawai‘i by Blood Quantum, 1984

Quantum -01	Distribution of the Native Hawaiian Population in Hawai'i by Blood Quantum: 1984

Age Groups	Blood Quantum						Total	
	100% Hawaiian		50% to 99% Hawaiian		Less Than 50% Hawaiian			
Under 5 years	283	3.4%	5,402	7.4%	22,790	17.9%	28,475	13.7%
5-19 years	740	9.0%	21,261	29.2%	52,667	41.3%	74,668	35.8%
20-34 years	591	7.2%	23,115	31.8%	32,211	25.3%	55,917	26.8%
35-44 years	2,187	26.5%	9,459	13.0%	7,711	6.0%	19,357	9.3%
45-54 years	1,448	17.6%	5,848	8.0%	6,733	5.3%	14,029	6.7%
55-64 years	1,259	15.3%	4,644	6.4%	2,903	2.3%	8,806	4.2%
65 years +	1,736	21.1%	2,980	4.1%	2,508	2.0%	7,224	3.5%
Total	8,244		72,709		127,523		208,476	

Note: The Data is based on a sample and is subject to sampling variability.

Source: Office of Hawaiian Affairs. *Population Survey / Needs Assessment. Final Report.* (Honolulu, 1986).

Data on Native Hawaiian kūpuna in Hawai‘i identified five social and health disparities that impact this group. These disparities are high rates of: (a) disability, (b) underutilization of services, (c) shorter life expectancies, (d) life-threatening diseases, and (e) poverty (Browne, Mokuau, & Braun, 2009). They have the highest prevalence of diabetes (16.1%) compared with Latinos (15.8%) and African Americans (15.0%) in California, and Japanese (10.2%) and Caucasians (6.3%) in Hawai‘i (Maskarinec et al., 2009). In another study with data exclusively to ethnic groups in Hawai‘i, Native Hawaiians had the highest rates of diabetes (Juarez, Davis, Brady, & Chung, 2012). As Native Hawaiians increase to 65 years of age, the presence of heart disease surpasses all other ethnic groups by six to ten percentage points (Juarez et al.). Native Hawaiians and Samoans were found to experience greater heart failure burden when compared with Asians and Whites (Kaholokula, Mau, Latimer, & Seto, 2008). They have higher body mass index (BMI) scores and higher rates of obesity than other ethnic groups (Maskarinec et al., 2006). As Native Hawaiians experience high BMI scores, their risk for developing chronic diseases increases (Maskarinec et al., 2007).

Although Hawai‘i is recognized for having citizens with the greatest longevity in the U.S., this does not reflect all residents. In fact, Native Hawaiians have the lowest life expectancy compared with other ethnic groups (Browne et al., 2014; Hughes, 2001; Ka‘opua et al., 2011). According to the 2010 U.S. Census on life expectancy at birth by ethnicity 1950 to 2010 and gender gap in 2010 in Hawaii, the life expectancy for Native Hawaiians is 76.6 years in comparison to Whites (80.6), Filipinos (84.3), Japanese (84.7), and Chinese (87.7). Native Hawaiians have a shorter life expectancy than other race/ethnic groups (Range: 4 – 11.2 years). In comparison to the U.S. population in 2010, Native Hawaiians have a life expectancy similar to

African Americans (75.1) (Wu et al., 2017). Because the U.S. Census does not publish life expectancies for Asian Americans or Pacific Islanders on a national level, the researcher was unable to compare or contrast to other ethnic groups across the nation (2017). Finally, the life expectancy by gender in 2010 in Hawai‘i for Native Hawaiian females (79.4) years and males (73.9) years were shorter in comparison to Whites (83.4/78.3), Filipinos (88.1/80.8), Japanese (88.0/81.2), and Chinese (90.0/85.3), respectively. Native Hawaiian females and males have a shorter life expectancy than other race/ethnic groups (Range: Females [4 – 10.6 years] & Males [4.4 – 7 years]) (Wu et al., 2017). These dismal facts overshadow the entire indigenous group.

Table 3. Life Expectancy at Birth by Ethnicity 1950 to 2010 and Gender Gap in 2010

	US Population			Hawai‘i population					
Year	Total	Caucasian	African American	Total	Chinese	Japanese	Filipino	Caucasian	Native Hawaiian
1950	68.2	69.1	60.8	69.5	69.7	72.6	69.1	69.2	62.5
1960	69.7	70.6	63.6	72.4	74.1	75.7	71.5	72.8	64.6
1970	70.8	71.7	64.1	74.2	76.1	77.4	72.6	73.2	67.6
1980	73.7	74.4	68.1	77.9	81.7	80.9	79.3	75.8	71.8
1990	75.4	76.1	69.1	78.9	82.9	82.1	78.9	75.5	74.3
2000	76.8	77.3	71.8	80.5	86.1	82.8	80.9	79.0	74.3
2010	78.7	78.9	75.1	82.4	87.7	84.7	84.3	80.6	76.6
2010									
Female	81.0	81.3	78.0	85.6	90.0	88.0	88.1	83.4	79.4
Male	76.2	76.5	71.8	79.2	85.3	81.2	80.8	78.3	73.9
Gender gap	4.8	4.8	6.2	6.4	4.7	6.8	7.3	5.1	5.5

Source: (Adapted from Table 1 from Wu et al., 2017)

With these startling statistics on Native Hawaiians, the future for this indigenous group looks bleak. One would not describe Native Hawaiians as a “healthy” group, but rather plagued with social and health disparities. McMullin (2005) stated, “The construction of Hawaiians as a 'diseased and unhealthy' population [is] masked [with] unequal access to resources which are necessary to living a “healthy” life” (p. 818). However, there are Native Hawaiian kūpuna that are resilient, living, and thriving into their older years.

The concept of “healthy aging” is seen in a positive light. According to Peel, Bartlett, and McClure (2007), healthy aging is described as “a multidimensional concept, encompassing the avoidance of disease and disability, the maintenance of high physical and cognitive function, and sustained engagement in social and productive activities” (p. 163). According to Hansen-Kyle (2005), healthy aging is defined as “the ability to continue to function mentally, physically, socially, and economically as the body slows down its processes” (p. 46).

Native Hawaiian kūpuna may share some of the positive attributes of healthy aging such as gender, ethnicity, socioeconomic status, self-acceptance, desire to age in place, and positive attitudes toward health and vitality. With emphasis on nutrition and diet, kūpuna can experience active aging, aging successfully in place, decrease chronic illness/disability/mortality, and increase in cognition. Based on observations and journal entries by foreigners, Native Hawaiians were described as “physically superior in size and stature, as well as in musculature and strength” (Hughes, 2001, p. 394). Native Hawaiian kūpuna who are able to thrive in this changing environment and society may have the ability to tap into the “ways of the ancestors” and cultural values and practices that embody the spirit of being Hawaiian. Identity and cultural preservation relates to Native Hawaiian health and well-being. The arrival of Westerners in 1778

served as a catalyst for change with detrimental effects still felt today among the indigenous people. The historical ramifications on health and well-being occurred with the introduction of Western diseases, the rapid decline of the Native Hawaiian population, the inundation of labor immigrants, the overthrow of the Hawaiian monarchy, the prohibition of native religion, and the loss of land ownership (Browne et al., 2009; McMullin, 2005). The repercussions of these drastic events have forever changed the people and landscape of Hawai‘i.

Prior to the arrival of Westerners, Native Hawaiian identity was defined by dynamic relationships between the land, nature, and the people (McCubbin & Marsella, 2009; McMullin, 2005). According to McMullin (2005), the “historical struggles with foreigners over land” deeply impacted the relationship between life, food, and ideologies. Food and the connection to land were culturally symbolic to thriving and maintaining balance. The traditional Hawaiian diet prior to Western contact sustained life and allowed Native Hawaiians to thrive. Returning to a pre-Western Hawaiian diet has proven beneficial to improving the health of Native Hawaiians (Hughes, 2001; Leslie, 2001; Shintani, Hughes, Beckham, & O’Connor, 1991). The balance and connection to food, the land and ocean (for planting, harvesting, hunting, and fishing), the family, and the ancestors promoting good stewardship, a “healthy Hawaiian identity”, and perpetuating the culture and way of life in Hawai‘i (McMullin).

It is important to return to the period in Hawaiian history when Native Hawaiians were thriving to learn and understand "ways of doing and knowing" in order to have a greater appreciation and respect for the work that will come in the future (McCubbin & Marsella, 2009). Native Hawaiian kūpuna are highly revered for their insight. The Native Hawaiian kūpuna could provide a lens into the health and well-being of Native Hawaiian individuals, families, and

communities and have the cultural knowledge of values and traditions related to nutrition and diet. It is with an awareness of the past and the ability to hope for the future that Native Hawaiians can embrace transformation as health and well-being is redefined through cultural identity and knowledge relating to nutrition and diet.

Statement of the Problem

Although Native Hawaiian kūpuna are faced with multiple social and health disparities, some are thriving into their later years of life. There is a gap in the literature regarding Native Hawaiian kūpuna who are 65 years and older and their nutrition and diet as it relates to their health and well-being.

Statement of the Purpose

The purpose of this study was to explore nutrition and diet as it relates to Native Hawaiian kūpuna in Hawai‘i utilizing a focused ethnographic approach to capture the cultural views that exist.

Research Question

What is the cultural context of nutrition and diet as it relates to the health and well-being of Native Hawaiian kūpuna in Hawai‘i?

CHAPTER 2

LITERATURE REVIEW

Methodology

The five databases used in this systematic literature review were (a) Cumulative Index of Nursing and Allied Health Literature (CINAHL), (b) PubMed Medline, (c) Sociological Abstracts, (d) Psychological Information Database (PsycINFO), and (e) Abstracts in Anthropology. The studies reviewed ranged from the years 2001 to 2017. The disciplines represented were (a) nursing, (b) medicine, (c) sociology, (d) psychology, and (e) anthropology. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) was utilized in this systematic literature review (Moher, Liberati, Tetzlaff, Altman, & The PRISMA Group, 2009).

Multiple searches were done combining search headings and key terms. Search headings chosen were ***nutrition***, ***diet, health*** and ***well-being.*** Key terms used were ***Native Hawaiians***, ***Hawaiians***, ***Native Hawaiians and older adults***, and ***Hawaiians and older adults***. An additional search was completed using the key term ***Hawaiians*** exclusively with no search headings.

Inclusion/Exclusion Criteria

The inclusion criteria were: (a) published date from January 2001 to December 2017, (b) age group: Aged, 65 years and older, (c) peer-reviewed, and (d) English language. Studies with participants at least 60 years of age and older were included in the review. Research studies on cancer, violence, sexual assault, substance abuse, smoking, and environment/policy strategies

were excluded. These issues of inclusion and exclusion were discussed and debated with my advisor.

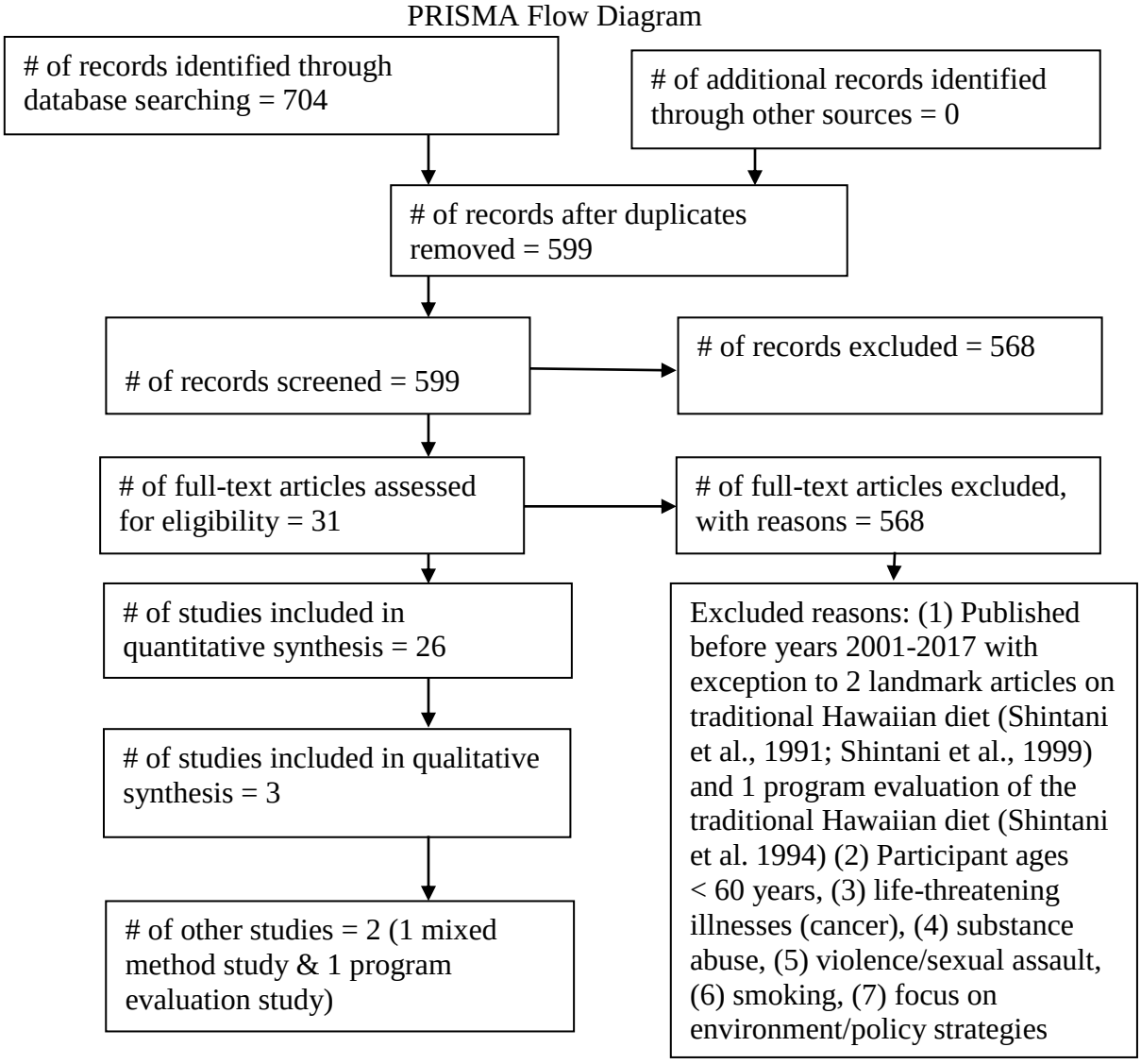
Data Abstraction

Based on the inclusion criteria, the initial number of studies was 704. The abstracts of these articles were reviewed. One hundred and five duplicate studies were omitted with 599 remaining. The articles found through database searching and duplicate articles removed were recorded utilizing the PRISMA flow diagram (Moher et al., 2009). At this stage, the process of selection, debating, and resolving disagreements face-to-face with the advisor occurred until inter-rater agreement was met. Debate and resolving disagreements settled around inclusion and exclusion criteria: (a) inclusion of published years 2001-2017 with the exception of two landmark articles on traditional Hawaiian diet (Shintani et al., 1991; Shintani, Beckham, Tang, O'Connor, & Hughes, 1999) and one program evaluation of the traditional Hawaiian diet (Shintani, Beckham, O'Connor, Hughes, & Sato, 1994), and (b) exclusion of participants less than 60 years, life-threatening illness (cancer), substance abuse, violence, sexual assault, smoking, and environment/policy strategies. A total of five hundred sixty eight full-text articles were removed based on the inclusion and exclusion criteria.

At the end, 31 studies were divided into four categories: nutrition, diet, health, and well-being. Five studies from CINAHL, 23 studies from PubMed Medline, and three studies from PsycINFO were reviewed. In the Sociological Abstracts and Abstracts in Anthropology databases, no articles were reviewed. The 31 studies were comprised of 26 quantitative studies, three qualitative studies, one program evaluation and one mixed method study. (see Appendix A) This was recorded on the PRISMA flow diagram (Moher et al.). (see Table 4) The advisor

and researcher also performed a “winnowing process” in which they worked backwards from the 31 full-text articles to the total number of studies initially identified through the database search (Liberati et al., 2009).

Table 4 – PRISMA Flow Diagram



Adapted from: Moher, D., Liberati, A., Tetzlaff, J., & Altman, D.G. (2009). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA Group. PLoS Med, 6(7): e1000097.doi: 10.1371/journal.pmed1000097.

Findings

A systematic literature review on nutrition and diet related to the health and well-being of Native Hawaiian kūpuna was conducted. The findings of the literature review were analyzed and synthesized. The four categories were: (1) nutrition, (2) diet, (3) nutrition and diet and health, and (4) nutrition and diet and well-being (Wong & Kataoka-Yahiro, 2017).

In 28 of the studies, Native Hawaiians lived in the State of Hawai‘i. One study (Lassetter, 2011) focused on Native Hawaiians who migrated to Las Vegas and two studies identified Native Hawaiians residing in Southern California (McEligot et al., 2010, 2012). Twelve studies compared data of Native Hawaiians, Japanese Americans, and Whites from Hawai‘i with Latinos and African Americans from Los Angeles in the Multiethnic Cohort (MES) Study (Albright, Steffen, Wilkens, Henderson, & Kolonel, 2007; Erber et al., 2010; Maskarinec et al., 2007; Maskarinec et al., 2009; Morimoto et al., 2011; Park et al., 2005; Park, Murphy, Martin, & Kolonel, 2008; Sharma et al., 2003; Sharma, Wilkens, Shen, & Kolonel, 2013; Sharma, Sheehy, & Kolonel, 2013; Sharma, Sheehy, & Kolonel, 2014; Steinbrecher et al., 2011).

Salient Findings on Nutrition

Six quantitative studies addressed nutrition (Park et al., 2005; Park et al., 2008; Sharma et al., 2003; Sharma, Sheehy, & Kolonel, 2013; Sharma, Sheehy, & Kolonel, 2014; Sharma et al., 2014). These studies examined dietary patterns (Park et al., 2005), multivitamin and mineral supplement use (Park et al., 2008), various ethnic groups and their adherence to the food guide pyramid (Sharma et al., 2003), dietary sources of five nutrients (Sharma et al., 2013), meat intake (Sharma et al., 2013), and fruit and vegetable intake (Sharma et al., 2014).

In the Multiethnic Cohort Study, three dietary patterns identified were: (1) Fat and Meat, (2) Vegetables, and (3) Fruit and Milk. Park et al (2005) found that ethnicity, gender, and age had strong associations with dietary patterns. In this study, Native Hawaiians and African Americans had a body mass index (BMI) greater than thirty. The "Fat and Meat" pattern had a strong association with a BMI greater than thirty (Park et al).

When compared to four other ethnic groups (Japanese Americans, Latinos, African Americans, Whites), Native Hawaiians were the least likely to use multivitamins (Park et al., 2008). When compared to Japanese and Whites in Hawai'i, Native Hawaiians had the greatest daily energy (kilocalorie) intake and highest BMI levels (Sharma et al., 2003). The daily energy intake was calculated based on the Food Guide Pyramid recommendations of servings of fruit, vegetables, dairy, grains, and meat/meat alternatives. The top two food sources of dietary fiber were bread and cereals (18.1% for Native Hawaiian women). Chicken/turkey dishes and fish were top food sources for dietary protein for Native Hawaiians (Sharma et al., 2013). Poultry was the top consumed meat product by Native Hawaiians and the other four ethnic groups (Sharma, Sheehy, & Kolonel, 2013). In relation to fruits and vegetable intake, Native Hawaiians selected poi, dark leafy greens, mangoes, papaya, and fruit juices (Sharma et al., 2014).

Salient Findings on Diet

There were four quantitative studies that discussed the traditional Hawaiian diet (Hughes, 2001; Leslie, 2001; Shintani et al., 1991; Shintani et al., 1999) and one program evaluation of the Wai'anae traditional Hawaiian diet program (Shintani et al., 1994). The four quantitative studies focused on diet as it related to cardiovascular health (Hughes; Leslie; Shintani et al., 1991; Shintani et al., 1999).

Diet and support. The traditional Hawaiian diet was one of the first interventions developed to address the deteriorating health concerns of Native Hawaiians (Hughes, 2001). This was a key component to improve serum lipid levels (cardiovascular health) for Native Hawaiians in the 1987 Molokaʻi Diet Study (Ka Hoʻoke ʻAi) (Hughes). The traditional Hawaiian diet was based on research and reviewing the literature regarding eating habits of Native Hawaiian ancestors, plant and animal species that existed, and the environment (Fujita, Braun, & Hughes, 2004). This led to the development of the nutritional composition of the pre-Western Hawaiian diet set at 78% carbohydrate, 10% fat, and 12% protein credited to Dr. Kekuni Blaisdell (Fujita et al.). The traditional food choices were taro, poi, fruit, seaweed, breadfruit, sweet potato, yams, greens (fern shoots, taro leaves, sweet potato leaves, yam leaves), chicken, and fish (Shintani et al., 1991). Food was traditionally prepared either steamed or raw.

In addition to the traditional Hawaiian diet component, family participation, values and traditions, cultural pride, and building of community capacity were integrated in the programs developed (Fujita et al., 2004). With this culturally-sensitive approach, programs were implemented across the State of Hawaiʻi in schools, hospitals, and community settings (e.g., the ʻAi Pono Programs offered by Mr. Herbert Hoe served over 1,000 participants) (Fujita et al.).

The Waiʻanae Diet Program had Native Hawaiian participants eat traditional Hawaiian foods until full (ad libitum) and attend cultural health education sessions. These participants had positive results of improved cardiovascular health and weight loss (Shintani et al., 1991; Shintani et al., 1994; Shintani et al., 1999).

Diet, exercise, and support. The Uli‘eo Koa Program connected ancient Hawaiian lifestyle practices of spiritual and physical fitness to improving cardiovascular health for the participants (Hughes, 2001). The program consisted of “a traditional Hawaiian diet, rigorous physical exercise, traditional Hawaiian warrior fighting exercises, traditional Hawaiian massage (lomilomi), a culturally rich health education program, and an assessment of spirituality” (Hughes, 2001, p. 393). The traditional Hawaiian diet was described as a “low-fat, high-complex-carbohydrate diet and fresh water to drink” (p. 395). This multi-faceted program was the only program to include a physical fitness component and a one-year assessment and evaluation of the participants.

Salient Findings on Health as it relates to Nutrition and Diet

There were 16 quantitative studies (Albright, Steffen, Wilkens, Henderson, & Kolonel, 2007; Aluli et al., 2009; Erber et al., 2010; Grandinetti et al., 2002; Juarez et al., 2012; Kaholokula et al., 2013; Lee, Onopa, Mau, & Seto, 2010; Kim, Park, Grandinetti, Holck, & Waslien, 2008; Maskarinec et al., 2006; Maskarinec et al., 2007; Maskarinec et al., 2009; Mau et al., 2001; Mau et al., 2008; McEligot et al., 2012; Morimoto et al., 2011; Steinbrecher et al., 2011), one qualitative study (Kaholokula et al., 2008), and one mixed method study (McEligot et al., 2010) that addressed health (e.g., disease processes) as it related to nutrition and diet. These studies account for the majority of this systematic literature review.

The focus of these multiple studies was on disease processes, obesity, BMI, and weight as it relates to nutrition and diet. The disease processes identified were diabetes (Aluli et al., 2009; Erber et al., 2010; Grandinetti et al, 2002; Lee et al., 2010; Mau et al., 2001; Maskarinec et al., 2009; Morimoto et al., 2011; Steinbrecher et al., 2011), cardiac issues (Aluli et al.; Juarez et

al., 2012; Kaholokula et al., 2008), and cardiometabolic conditions (McEligot et al., 2010).

Disease processes.

Diabetes. A greater number of Native Hawaiian men (24%) than Native Hawaiian women (21%) had diabetes (Aluli et al., 2009). Native Hawaiians had poor blood glucose control compared with Caucasians (Lee et al., 2010). An increase in Native Hawaiian blood quantum was significantly associated with an increase in fasting glucose concentrations (Grandinetti et al., 2002). Multiple risk factors for diabetes related to nutrition and diet were lack of physical activity, high meat consumption (Steinbrecher et al., 2011), and weight gain (Morimoto et al., 2011).

The Native Hawaiian diabetes intervention program focused on evaluating if support from others would impact diet and exercise behaviors (Mau et al., 2001). The findings identified participants that had support from a family member, neighbor, or colleague resulted in "healthier" dietary and exercise behaviors when compared to the control group (Mau et al.). The ability to advance from the pre-action stage to the action/maintenance stage created positive changes with increased physical activity and decrease in fat intake (Mau et al.).

In the Kohala Health Research Project, three dietary patterns were identified (Factor 1: frequent intake of fruits and vegetables, Factor 2: animal foods and local ethnic dishes, Factor 3: Western diet) (Kim et al., 2008). The Factor 2 dietary pattern was positively associated with diabetes. The dietary pattern of "Fat and Meat" correlated with an increased diabetes risk in all ethnic groups (Erber et al., 2010).

According to Kim et al. (2008), total energy intake (when energy intake is adjusted for) and ethnicity may be significant diabetes risk factors versus a dietary pattern (Kim et al.).

Reducing energy intake and addressing ethnic background (genetic factors, cultural dietary habits, lifestyle) may help to prevent diabetes (Kim et al.).

Cardiac. Native Hawaiians with diabetes are at risk for hypertension, elevated triglycerides, and elevated LDL cholesterol levels (Aluli et al., 2009). Native Hawaiians have an increased prevalence of heart disease compared with other ethnic groups by the age of 50 (Juarez et al., 2012). According to Kaholokula et al. (2008), Pacific Islanders (Native Hawaiians and Samoans) acknowledged less salt and fat in diet, increase physical activity, and stress reduction are important in heart failure management.

Cardiometabolic conditions. McEligot et al. (2010) reports that a high prevalence of diabetes, impaired glucose tolerance, cardiovascular disease, hypertension, and obesity was identified in studies on Native Hawaiians living in Hawai‘i. In their study, 75% of Native Hawaiians living in Southern California had a cardiometabolic-related condition. Among these individuals, 87% were overweight or obese (McEligot et al).

Obesity, BMI, and Weight. The mean BMI of monoracial Native Hawaiians and Native Hawaiians with mixed ethnicity was highest compared to other monoracial or mixed ethnic groups (Albright et al., 2007). In a weight loss study conducted in Hawai‘i, ethnicity, initial weight loss, and the intervention group had a significant association with loss of weight over nine months. However, less than half of the Native Hawaiian participants (35.7%) were able to reach the weight loss goals compared to recently migrated Chuukese participants (63.6%) (Kaholokula et al., 2013). This study shed light on a new finding that ethnic differences exist between Pacific Islanders related to weight loss (Kaholokula et al).

Almost 88% of the Native Hawaiian participants living in Southern California were overweight or obese in their study (McEligot et al., 2012). Of these participants, less than twenty percent met the daily recommendations of vegetables, fiber, fruits, and whole grains. Mau et al. (2008) reported that obesogenic environmental factors (e.g., fast food outlets) are higher in communities with a large concentration of Native Hawaiians. This influences the high rates of obesity among Native Hawaiians (Mau et al).

Salient Findings on Well-being as it relates to Nutrition and Diet

There were two qualitative studies (Lassetter, 2011; McMullin, 2005) on well-being as it relates to nutrition and diet. One of the studies discussed the well-being of Native Hawaiians who have migrated to Las Vegas, the role of food, and the challenges they face (Lassetter). The second study explored the meaning of a "healthy Hawaiian" (McMullin).

The majority of Native Hawaiians who migrated to Las Vegas revealed that Hawaiian food provided comfort and relief from "homesickness" (Lassetter, 2011). Hawaiian food played an important role in Native Hawaiian well-being by bringing people together (Lassetter).

In McMullin's (2005) article, the well-being of Native Hawaiians was directly affected by the revitalization of the Hawaiian culture. A journey through two rural areas of Hawai'i, explored the meaning of health through a Native Hawaiian perspective. The outcome and development of the "Healthy Ancestor" encourages Native Hawaiians to blend culture and health (McMullin). The symbolism behind "Healthy Ancestor" focuses on the past, the present, and future. The importance of land and family relationships is at the forefront of seeing health through the cultural lens of our Native Hawaiian ancestors (McMullin).

Instruments

The most common instrument utilized in 19 of the studies was the questionnaire. A variety of questionnaires ranged from baseline questionnaires to food frequency questionnaires. In ten of the studies, physiological measurements were used. Lab work was included for three studies. Two qualitative studies and one quantitative study conducted interviews. Only one qualitative study used focus groups. Additional instruments chosen were 24 hour dietary recall (Hughes, 2001; Leslie, 2001), survey (Juarez et al., 2012), standardized forms (Mau et al., 2008), and participant observation (McMullin, 2005).

Summary

Identifying studies with Native Hawaiian kūpuna 65 years and older was quite challenging. Thirteen studies were exclusively on Native Hawaiian participants varying in age from young, middle, and later adulthood. The other 18 studies compared Native Hawaiian participants to individuals from other ethnic groups. The decision to reduce the age to '60 years and older' provided an opportunity to include more studies in the systematic literature review. Even with this change to the inclusion criteria, no studies on Native Hawaiian kūpuna 65 years and older which focused specifically on diet and nutrition related to health and well-being were found. The lack of studies exclusively on Native Hawaiian kūpuna serves as a catalyst to conduct future studies in this area of research.

The traditional Hawaiian diet programs such as the Wai'anae Diet Program and the Uli'eo Koa Program reported that the Native Hawaiian participants were 22 to 64 years in age.

There may have been participating kūpuna 65 years and older in the ‘Ai Pono programs across the State, but we will not know for sure as this was not documented in the studies (Hughes, 2001; Leslie, 2001; Shintani et al., 1991).

The recommendations suggest that the traditional Hawaiian diet programs expand the duration to a year or longer (Fujita et al., 2004). This will provide participants the ability to receive support from each other over a longer period of time and encourage sustainability of meeting program outcomes. The recommendations of incorporating a larger sample size, control group, randomized design, and lab data could be achieved (Shintani et al., 1999; Leslie, 2001; Mau et al., 2001).

The foods of the traditional Hawaiian diet such as taro, poi, sweet potato, and fish are low in fat, low in protein, and high in carbohydrates. The studies mentioned the positive health outcomes of improved cardiovascular health and weight loss with utilizing the traditional Hawaiian diet (Shintani et al., 1991; Hughes, 2001; Fujita et al., 2004). However, there were difficulties in accessing traditional foods to sustain the traditional Hawaiian diet and alternative options were supplemented (e.g., brown rice, broccoli, tomatoes) (Leslie, 2001). The addition and/or food substitutes did increase adherence and add variety to the menu (Leslie). Consumption of foods from the traditional Hawaiian diet connects Native Hawaiians to the reality that Hawaiian food eaten by the ancestors can again be used for their health and well-being. Hughes (2001) shares historical accounts of Native Hawaiians being “physically superior in size and stature, as well as in musculature and strength” (p. 394). Native Hawaiians had a healthy diet with traditional Hawaiian foods and daily physical work (Hughes).

Many of the studies focused on disease processes such as diabetes, cardiac issues, and cardiometabolic conditions. Utilizing dietary behavior modification strategies (Kim et al., 2008), focusing on health disparities and prevention earlier (Juarez et al., 2012), and adding an environmental assessment along with nutritional and dietary assessments (Mau et al., 2008) may help to improve future studies and chronic disease management. To improve the understanding of health disparities for Native Hawaiians and other ethnic groups in Hawai‘i, future studies on ethnic admixtures could be conducted (Albright et al., 2007).

Many Native Hawaiians have chosen to migrate to the continental U.S. (e.g., Las Vegas) to seek out employment opportunities and/or a lower cost of living (Lassetter, 2011). Native Hawaiians have experienced “homesickness” and a 'loss of identity' when migrating to new areas. The connection to the Hawaiian culture and values needs to be nurtured to improve health and well-being for Native Hawaiians away from home. Native Hawaiians have a ‘tactile connection’ to the land and ocean. In addressing Native Hawaiian migrants, future research should focus on educating and counseling participants about values, behaviors, nutrition, and dietary needs (Lassetter).

The traditional Hawaiian diet as an intervention among the Native Hawaiian community has been successful with improving cardiovascular health and promoting weight loss. Encouraging a connection to eating traditional Hawaiian foods can promote health and well-being. Reconnecting to the land and ocean can help to improve life and promote a connection to where the food is grown, the water is abundant, and the fish thrive. Connecting to nature can occur with growing fruits and vegetables in a garden or spending time at the beaches and parks (Fujita et al., 2004).

Cultural knowledge and skills can be shared in preparation of healthy Hawaiian dishes. Consumption of the traditional Hawaiian diet foods with substitutions and ethnic foods may add variety and promote sustainability. Additional research on nutrition and diet as it relates to the health and well-being of Native Hawaiian kūpuna will need to be further addressed.

Chapter 3

RESEARCH DESIGN AND METHODS

The purpose of this qualitative study explored nutrition and diet as it relates to the health and well-being of Native Hawaiian kūpuna. The chapter includes the methodology selection, participants, setting, data collection, data analysis, rigor, data management, and protection of human rights.

Methodology

Definition

The study design selected was focused ethnography (Polit & Beck, 2008, p. 224). In a broader context, ethnography is defined as "the process and product of describing cultural behavior" (Cruz & Higginbottom, 2013). Roper and Shapira (2000) defined ethnography as "a research process of learning about people by learning from them" (p.1). Fetterman (2010) refers to ethnography as providing a voice to the people within the local context and telling the story of their lives through their eyes (p. 1). Ethnographers strive to understand the participants' world view with an emic perspective (insiders' view) versus an etic perspective (outsiders' view) (Polit & Beck, 2008, p. 225).

Types of Ethnography

According to Polit and Beck (2008), there are two types of ethnography: macroethnography and microethnography (focused ethnography) (p. 224). Macroethnography is characterized by focusing on "broadly defined cultures" or entire communities (e.g., a Fijian village culture) while microethnography (focused ethnography) concentrates on a specific issue, experience in a culture

or sub-cultures in specific settings (e.g., nursing culture on a medical intensive care unit) (Cruz & Higginbottom, 2013; Polit & Beck, 2008, p. 224).

Process

Ethnography has its roots and evolution in anthropology, and is the study of interactions, behaviors, and perceptions (Fielding, 2001, p.145; Reeves, Kuper, & Hodges, 2008). The anthropological beginnings occurred with small, rural communities that later branched out to urban settings. "The central aim of ethnography is to provide rich, holistic insights into people's views and actions, as well as the nature (that is, sights, sounds) of the location they inhabit, through the collection of detailed observations and interviews" (Reeves et al.). The exploration of ethnography allows insight into a culture or social process, ability to compare and contrast, and find the fit or the lack of fit between theory and reality (p. 146-147). According to Spradley (1979), ethnography is based on the assumption that knowledge of all cultures is valuable (p. 10).

There are three data collection strategies with ethnography: (a) participant observation, (b) formal and informal interviews, and (c) examination of relevant documents (Cruz & Higginbottom, 2013; Roper & Shapira, 2000, p. 13).

Ethnography is relevant to nursing as the study of culture and people help nurses provide culturally competent care to patients (de Chesnay, 2015, p. 1). Cultural competence can be described as having the ability to work with others from different lifestyles-specifically ethnicity, country of origin, profession, job, or other life conditions (pp. 2-3). de Chesnay (2015) goes on to point out that nurses may not know about every world culture, but it is important to know about the cultures represented in the communities that we live and work in (p. 3).

Focused ethnography targets specific questions and tend to be conducted over a shorter period of time versus traditional ethnography (Roper & Shapira, 2000, p. 7). In this short period, a substantial amount of data could be collected and analyzed (Cruz & Higginbottom, 2013).

There were several characteristics of focused ethnography identified and adapted from Muecke (1994) by Cruz and Higginbottom (2013), "(a) problem-focused/content specific, (b) focus on discrete community, organization, social phenomena, (c) conceptual orientation of a single researcher, (d) limited number of participants, (e) episodic participant observation, (f) participants hold specific knowledge, (g) used in academia and healthcare services development" (p. 38).

Ethnography has evolved beyond nurses obtaining doctoral degrees in anthropology to nurses focusing on culturally competent care and conducting ethnographic research in their home countries (Keen & de Chesnay, 2015, p. 32). This knowledge has enriched the nursing discipline to improve and enhance care (p. 32).

In order to capture the perceptions, beliefs, and values of Native Hawaiian kūpuna, a focused ethnographic approach will allow for dialogue and discussion congruent with the Hawaiian culture and the ways of knowing and sharing of knowledge. In this indigenous culture, history and knowledge has been passed on through the oral tradition. The richness gathered can often be missed on paper or in a structured quantitative approach. The focused ethnographic methodology will allow the researcher to hear, touch, see, taste, and smell what is in the environment of the kūpuna. The use of the five senses can transport one through the cultural lens and create empathy to step into the "shoes" of kūpuna and their daily routines and rituals. The use of focused ethnography as a research design is appropriate for this study.

Research Design

Participants

The participants were Native Hawaiian kūpuna 65 years and older. The kūpuna were recruited by the use of a flyer (see Appendix B: Recruitment Flyer). There were no restrictions regarding socioeconomic status or gender. The inclusion criteria of eligible participants were: (a) self-report Native Hawaiian, (b) 65 years of age or older, (c) reside in Hawai‘i (island of O‘ahu or island of Hawai‘i), (d) live in the community, (e) able to read, write, and speak in English, and (f) able to independently understand and sign the consent form.

The sampling frame is snowballing. Snowball sampling is the selection of participants based on referrals from earlier study participants (Polit & Beck, 2008, pp. 354-355, 766). Advantages to using this type of sampling assisted with (a) establishing trust, (b) requiring specific characteristics of participants, (c) practical and cost-effective recruitment. The disadavantages of using snowball sampling impacted the quality of referrals and restricted the sample to select acquaintances (p. 355).

A point of saturation occurred when there was “a collection of qualitative data to the point where a sense of closure is attained because new data yield redundant information” (Polit & Beck, 2008, p. 765). The sampling decisions and number of participants in the study was guided by the data. As participants were interviewed and interviews were transcribed, themes and categories in the data emerged. Saturation was reached when there was repetition of data and the lack of new information (pp. 70-71).

Setting

Native Hawaiian kūpuna were recruited from three sites on the island of O‘ahu and the

island of Hawai‘i. On the island of O‘ahu, the first site was at the Papakōlea Community Park and Center. The site director was the contact person.

The second site was on the island of Hawai‘i at a church located in Waimea (Kamuela). The contact person was an active member in the church and community.

The third site was a church in the Waimānalo community. The contact person was a Native Hawaiian kūpuna who was an active volunteer at the church.

When defining urban and rural populations, the U.S. federal government utilizes definitions provided by the U.S. Census Bureau and the Office of Management and Budget (www.hrsa.gov/ruralhealth/aboutus/definition.html). There are some variations between the two agencies and measurement challenges with the definitions. Based on the 2010 U.S. Census, two types of urban areas were defined. “Urbanized areas” have 50,000 or more people and “urban clusters” have at least 2,500 but less than 50,000 people. A rural area would include any area outside of the urban areas (https://www.census.gov/geo/reference/ua/uafaq.html).

According to the Office of Management and Budget Definition, a metropolitan area included “a core urban area of 50,000 or more population” while counties not in a metropolitan area would be considered rural (www.hrsa.gov/ruralhealth/aboutus/definition.html). The island of O‘ahu would be considered urban while the other seven Hawaiian Islands to be rural (www.ers.usda.gov/datafiles/Rural_Definitions/…/HI.pdf).

Research Questions

The potential research questions were developed and evaluated in collaboration with the dissertation advisor (see Appendix C: Research Questions). The following six open-ended questions were used in the focused ethnographic study:

(1) How would you describe a healthy person?

(2) In your own words, what is the key to good health?

(3) Could you describe your daily routine from the time you wake up to the time you go to sleep?

(4) What kinds of food and beverages have you consumed over the past week?

(5) What are the Native Hawaiian cultural values, practices, and traditions that impact your life and health?

(6) In your own words, what is key to living well?

Data Collection

Recruitment

Recruitment of Native Hawaiian kūpuna participants began with contacting *key informants* who were willing to serve as contact persons at the three data collection sites. The researcher reached designated contact persons by telephone or face-to-face meetings. Various aspects of the study were explained including the purpose of the research, procedures for recruitment, inclusion criteria, incentives, confidentiality, interviews, tentative project start date, and the role of the contact person. Contact persons in Waimānalo and Waimea (Kamuela) were both affiliated with a church organization. The contact person in Papakōlea was affiliated with the community park/recreation center. All contact persons agreed to support the project by distributing the project flyer at their designated sites and in the communities. If a kupuna was interested in participating in the study, he or she notified the site contact person and provided their name and phone number. The site contact person communicated the information to the researcher and the researcher called the prospective participant. The site contact person also

served as liaison for kūpuna to schedule a meeting time with the researcher for the interview at the designated locations. Additional referrals occurred with snowball sampling as participants recruited and referred other participants (Polit & Beck, 2008, pp. 354-355, 766).

Procedures

Before the Interview. Each participant was contacted via telephone and asked to answer a few questions to confirm eligibility (see Appendix D: Native Hawaiian Kūpuna Inclusion Criteria Form). With confirmation of eligibility, the meeting place and time for the interview was discussed. Before entering the meeting location, the researcher arrived at least a half an hour to one hour before the interview to complete a journal of reflective field notes and observations of the environment or setting. Upon arrival to the meeting location, the researcher greeted the participant and offered a bottle of water and snacks. There was an introduction period to "warm up" and "get to know each other" with an explanation of what would occur over the two-hour period. The participant was informed that there was a consent form (see Appendix E: Consent Form) and a demographic form (see Appendix F: Demographic Information Form) to be filled out.

The participant was given time to read through the consent form which covered the purpose of the project, benefits, compensation, project description, risks, voluntary right to withdraw, researcher contact information, and the University of Hawai‘i at Mānoa Office of Research Compliance contact information. The participant initialed "YES" or "NO" to consent to be audio-recorded for the interview portion. All participants agreed to be recorded during the interview. The recordings will be destroyed at the end of the research project.

The participant was given the choice to sign and date the consent form to participate in

the study. The researcher and eligible participant obtaining the consent also signed the consent form. A copy of the consent form was provided to the participant and the original consent form was kept with the researcher. The incentive of $25.00 Foodland gift card was presented to the participant whether or not he or she had agreed to participate. If the potential participants did not agree to participate, the researcher offered thanks and presented them with the incentive. If the participant agreed to participate and the incentive was provided to the participant, he or she was asked to fill out the Native Hawaiian Kūpuna Inclusion Criteria Form and the Demographic Information Form. To address confidentiality, the forms were assigned a numerical code in the upper right hand corner. When all forms were completed and the researcher reviewed the forms, the participant had a chance to ask any questions or request clarification. Once this was complete, the researcher proceeded on to the interview. The entire process took approximately 2 to 2.5 hours.

During the Interview. After consent was given to audio-record the interview, recording was initiated. In addition, the researcher took notes utilizing the field notes form and noted the code number, date, start time, and location of the interview (See Appendix G: Field Notes). The researcher proceeded with asking the six open-ended research questions. Additional probing questions was asked such as “Do you purchase your food at the grocery store, the farmers market, or grow your own food?”, “Do you have any favorite foods that you like to eat?”, “Are there any Native Hawaiian cultural values, practices, and traditions that impact your nutrition and diet?” At the end of the interview, the participant was informed and notified that they will be contacted to clarify any information mentioned in the interview via telephone or face-to-face. A copy of the transcribed interview was provided to the participant to review prior to the second

contact. If the participant refused to an additional meeting, no further contact was made. The researcher thanked the participant for their time and willingness to participate in the project.

After the Interview. Immediately after the interview, the researcher continued to add to the field notes form with additional observations and reflections. The audio recordings were transcribed by the researcher. Following the transcription process, the researcher completed a member check with each of the 21 Native Hawaiian kūpuna. All revisions and edits were completed prior to the coding and data analyses.

Data Analysis

Data analysis included descriptive statistics of the demographic data assessing for frequency, means, and standard deviation. Statistical software was utilized to evaluate the demographic data. The information was de-identified and the data had an assigned numeric code. After the data was transcribed, coding was done by the research manually by paper and pencil. According to Saldana (2013), coding in qualitative inquiry is a short phrase or word that sums up the data. The data can be from the participant observation field notes, interview transcripts, journals, documents, drawings, literature, and e-mail correspondence (p. 3). There were a few cycles of coding that occurred.

Thematic analysis is “an outcome of coding, categorization, and analytic reflection” (Saldana, 2013, p. 175). DeSantis and Ugarriza (2000) defined a theme as “an abstract entity that brings meaning and identity to a recurrent [patterned] experience and its variant manifestations. As such, a theme captures and unifies the nature or basis of the experience into a meaningful whole” (p. 362). The transcribed interviews, field notes, and participant observation notes were compared, analyzed, and coded. From the categories that emerged, further synthesis occurred

with sub-categories, sub-subcategories, sub-sub-subcategories, and sub-sub-sub-subcategories. The analysis then led to the presence of a theme that emerged.

The goal was to complete coding and analysis to find categories and themes that provide an understanding of nutrition and diet as it relates to health and well-being for Native Hawaiian kūpuna. The researcher and dissertation advisor had face-to-face meetings and communicated by email regarding the data coding interpretation and analysis. The coding and analysis process was documented on Excel software. The multiple edits and revisions of the data occurred over a five month period. Debate and discussion occurred between the researcher and advisor until consensus was obtained. A codebook was created with the categories highlighted. After the researcher and advisor completed their analysis, an external reviewer was asked to review and analyze the de-identified data independent of the researcher and advisor. The external reviewer was an expert with qualitative research with Native Hawaiians and indigenous populations.

Rigor

Rigor or the quality of the study was maintained in this focused ethnographic study. To establish and develop trustworthiness, Lincoln and Guba (1985) framework identified four criteria: (a) credibility, (b) dependability, (c) confirmability, and (d) transferability (p. 316). The fifth criterion is authenticity (Polit & Beck, 2008, p. 540).

Credibility is presenting truthful descriptions, data, and interpretations of the findings. The researcher documented in the field notes the content, interactions, and reactions to events (Koch, 1994). The researcher needs to enhance "believability" of the findings and "demonstrate" truth to the reader (Polit & Beck, 2008, p. 539). Completing a 'member check' with the participants in a follow-up interview to clarify category/themes that were found in the analysis

enhanced credibility.

Dependability refers to the "reliability of data over a period of time and over conditions" (Polit & Beck, 2008, p. 539). This allowed for the data to be consistent and the findings were checked to see if it could be replicated. Field notes and analysis with details, description information, jottings, analysis, and reflections (Koch, 1994) had similar findings that provided reliability of the data.

Confirmability is when there is an agreement and congruence between two or more individuals who have viewed the relevance, meaning, and accuracy of the data (Polit & Beck, 2008, p. 539). The criterion for rigor is when the data is audited by an external reviewer independent of the researcher and advisor.

Transferability refers to the ability that the data could be applicable in another context or in a group (Koch, 1994; Polit & Beck, 2008, p. 539). The researcher was thorough in the field notes, data, transcription notes, and theme analysis in order to apply the information to other contexts (p. 539). The researcher followed a standard procedure for data collection for all encounters.

Authenticity explores the "extent to which the researchers fairly and faithfully show a range of different realities" (Polit & Beck, 2008, p. 540). Authenticity was achieved when the researcher conveyed the 'experience, feeling, mood, language, and context of the participants' lives' (p. 540). Field notes were reflective and descriptive capturing the objectivity of the data.

An additional way to ensure rigor is through reflexivity. Reflexivity is defined as a "critical self-reflection about one's own biases, preferences, and preconceptions" (Polit & Beck, 2008, p. 764). This is utilized in qualitative studies, especially focused ethnographies when the

‘researcher is familiar with or may have a personal experience with the culture being studied’ (Cruz & Higginbottom, 2013). Self-reflection was done by journaling and socratic method of discussion with advisor.

Data Management of Human Subjects

The researcher transcribed the interviews. The interviews were transcribed verbatim. The transcribed interviews were returned to each kupuna for review. Some of the kūpuna requested an edited transcript. Edits and revisions went back and forth between kupuna and researcher until the kupuna provided approval. Transcription software and a foot pedal were used for the transcription process. The researcher had an external reviewer and dissertation advisor to carefully review the data and the coding and thematic analysis. Excel spreadsheets helped to display the categories and sub-categories that emerged in the analysis process. After careful preparation by the researcher and a thorough review by the dissertation advisor, the de-identified data and the table with themes and categories were provided to the external reviewer. All data materials were kept in a locked cabinet.

Protection of Human Subjects

The research proposal was submitted to the University of Hawai‘i at Mānoa Office of Research Compliance for exempt status application review and approval. The forms, field notes, and audio recordings were kept in a locked cabinet, and confidentiality was maintained. The researcher was the only individual with access to these items. At the end of the study, the transcribed recordings will be destroyed. The participants were informed of the measures taken to ensure confidentiality and the consent form was reviewed in detail. The participant was given time to read through the consent form which covered the purpose of the project, benefits,

compensation, project description, risks, voluntary right to withdraw, researcher contact information, and the University of Hawai‘i at Mānoa Office of Research Compliance contact information. The participant initialed “YES” or “NO” to consent to be audio-recorded for the interview portion. All participants agreed to be recorded during the interview. A copy of the consent form was given to the participants.

The participants were informed that the researcher was a doctoral student at the University of Hawai‘i at Mānoa School of Nursing and Dental Hygiene. At the completion of the study, the results will be published.

Summary

This focused ethnographic study addressed nutrition and diet as it relates to the health and well-being of Native Hawaiian kūpuna. Native Hawaiian kūpuna lived in the urban areas of Waimānalo and Papakōlea on the island of O‘ahu and the rural area of Waimea (Kamuela) on the island of Hawai‘i. Thematic analysis was completed. Exempt status application was submitted to the UH Mānoa Office of Research Compliance and documents were developed to place as attachments to the IRB application (see Appendices B-G). The rigor of trustworthiness of this qualitative study and data management and protection of human subjects was maintained throughout the project.

Chapter 4

RESULTS

The results of this focused ethnographic study were based on coding and analyzing data from the interviews conducted. The external reviewer concurred with the findings. A total of 21 face-to-face interviews were completed with Native Hawaiian kūpuna 65 years and older. Kūpuna who participated lived on the island of Oʻahu and the island of Hawaiʻi.

Field observation, field notes, and demographic information were also obtained. The coding included six categories, 26 subcategories, 62 sub-subcategories, 81 sub-sub-subcategories, and 30 sub-sub-sub-subcategories emerged.

Sample

There were a total of 21 Native Hawaiian kūpuna between 65 and 88 years of age that participated in face-to-face interviews and completed the Demographic Data form (see Table 2). The 21 participants were comprised of 13 females and eight males. Twelve kūpuna self-reported as Native Hawaiian. Nine kūpuna self-reported as mixed ethnicity (i.e. Native Hawaiian and one or two other ethnicities). Fourteen kūpuna were married and seven kūpuna were not married (e.g. single, widow, divorced). All participants were residents of the State of Hawaiʻi. Their education levels ranged from less than high school to post-grad/professional degrees. The majority of kūpuna were retired with the exception of three that were employed part-time. All participants had health insurance and were homeowners. Five kūpuna lived alone and 16 kūpuna lived with spouses and/or other family members ranging from two to nine in the household.

The majority of kūpuna lived on Hawaiian Homestead Lands. In Papakōlea, there were three residential areas: Papakōlea, Kewalo, and Kalawahine.

In Waimea (Kamuela), the Hawaiian Homesteads are comprised of residential, agricultural, and pastoral lands. The areas that some of the participating kūpuna lived in were residential and agricultural. The residential areas were Kūhiō Village, Puʻu Pūlehu, and Lālāmilo. The agricultural area is known as Puʻukapu. The Waimea (Kamuela) Homesteads are located in the North Kohala area of the island of Hawaiʻi.

In Waimānalo, the participating kūpuna lived in the Waimānalo Hawaiian Homestead. The Waimānalo area is on the eastern side of the island of Oʻahu. It is a windward community nestled between the ocean and the Koʻolau mountain range.

Table 5. Demographic Data of the Participants Interviewed (n=21)

Characteristic	**Value Labels**	**N (%)**
Age (years)	Age Range: 65-88	21 (100.0%)
	Mean: 75.76	
	SD: 6.79	
Self-reported Ethnicity	Native Hawaiian	12 (57.1%)
	Mixed (Native Hawaiian and one or two other ethnicities)	9 (42.9%)
Marital Status	Married (including separated)	14 (66.7%)
	Not Married (e.g. single, divorced, widow)	7 (33.3%)
Hawaiʻi Resident	Yes	21 (100.0%)
Education Level	Less High School to High School	9 (42.9%)
	Some College	5 (23.8%)
	College grad to Post-grad/Professional Degree	7 (33.3%)
Work Status	Retired	18 (85.7%)

Characteristics	Value Labels	N (%)
	Part-Time	3 (14.3%)
Health Insurance	Yes	21 (100.0%)
Homeowner	Yes	21 (100.0%)
# of individuals in Home	1	5 (23.8%)
	2	4 (19.1%)
	3-5	8 (38.1%)
	6-9	4 (19.0%)

Field Notes and Observations

Field notes and observations were conducted. A sample of the field notes and observations will highlight the three sites.

Field Note and Observation 1: "As I drove through the Punchbowl area, I was greeted with a sign that read, "E komo mai, Papakōlea" (Welcome to Papakōlea). The first thing you see is a large covered basketball court adjacent to the community center. I pulled in to one of the parking stalls in a small parking lot just able to fit about five to six cars. I went in to the Community Park and Center and greeted one of the directors and then my site contact person. I was directed to the health room. There was a little desk with a computer monitor on it. There was a chair right next to the desk for the kupuna to sit. There were children and teenagers in the next room. This was a study room and library. It was in the afternoon and school was finished. The community center was known as a gathering place for the children of the community afterschool program.

The air was cold and I had my bottle of water and snacks ready for my participant. I started jotting down notes as I observed the environment through my senses. The kūpuna came in and we greeted each other. We had never met before, but there was a sense of familiarity for

them at the site. The site contact person was also there greeting the kupuna and offering words of support for the interview and for me as a student. As I sat down with the kupuna, I started by introducing myself and explaining the project and what was going to take place. The kupuna was focused with direct eye contact and a serious look as we went through each form. As I started the recorder, the kupuna sat up straight and began to answer the questions. As we moved from question to question speaking in Hawaiian pidgin English, the kupuna began to relax in the chair and sat back. The words began to flow as the story was told. As we completed with the last question and the recorder was turned off, the kupuna still wanted to converse. We sat and continued our conversation."

Field Note and Observation 2: The second site was on the island of Hawai‘i. "I drove on a two-lane highway to my destination. The air was crisp and the fog was floating over the rolling green hills of Mauna Kea. The cows and horses were seen in the distance grazing. I met a kupuna at a park. I arrived before the participant. It was a park that was humming with the flow of the river, the birds chirping, and the wind rustling through the trees. The sun was peeking out behind the clouds, but it was a cold, crisp day in January in the town of Waimea. I had my jacket on and a hat. My fingers were icy and the tip of my nose was as cold as a popsicle. I greeted my participant. We found a park bench to sit and talk. Just as I got acclimated to the bench, I was encouraged to take a walk. The kupuna had so much to show me in this park. We went to look at the flowers and the plants. The kupuna knew all the names of the flowers, plants and the trees. We picked some mamaki leaves even though the sign said, "Do not pick flowers or plants." I was given permission in that moment to go ahead and pick some of the leaves. The kupuna went

on to share about mamaki tea and how to prepare the leaves for tea. We made our way back to the bench and then I began to explain who I was and what my project was about.

Field Note and Observation 3: The third site was in Waimānalo on the island of Oʻahu. "I drove up to a church just off Kalanianaʻole Highway after taking the scenic route of the Koʻolau mountains and the beautiful turquoise ocean. It was located right across an elementary school and next to the local health clinic. The church was beautiful. As I stood in the parking lot facing the church and adjacent buildings, my eyes were drawn to the mosaic mural of a saint. As I gazed at the beautiful scene in front of me, my site contact person arrived. We talked briefly and then I was taken to meet the priest. He was a gentle man. He welcomed me to the church and was delighted to assist with my project by having the interviews conducted on the premises. Shortly after the meeting, my site contact person showed me one of the meeting rooms that I would be able to conduct the interviews in. It had a few tables and chairs. It was enclosed with no windows, but an air conditioning unit was turned on. With no time to sit, I greeted a kupuna who was ready for the interview. We were on a time schedule because she was having lunch with the priest and the ladies of the church. I took a deep breath and we began going through the forms. As we began the interview questions, the kupuna shared of growing up on the island of Molokaʻi. As we continued to converse, her eyes lit up as did mine. We had a connection. She nestled into her seat, smiled, and began sharing her manaʻo (wisdom) to each question that I asked."

Coding and Analysis

Thematic coding was conducted on data from 21 interview transcriptions (Saldana, 2013,

p. 175). Through the multiple coding cycles conducted, six categories were identified. The six categories are:

(1) Healthy Person

(2) Good Health

(3) Daily Routine

(4) Food Choices/Preferences

(5) NH Cultural Values, Traditions, and Practices

(6) Key to Living Well

Categories

The six categories have led to multiple sub-categories, sub-subcategories, sub-sub-subcategories, and sub-sub-sub-subcategories (see Appendix H). The coding cycles led to a detailed critique and analysis of the data presented in the transcribed interviews (Saldana, 2013, p. 13).

(1) Healthy Person. Healthy Person was the first category which led to emerging sub-categories of a healthy person which included (a) activity, (b) balance in life, (c) cognition, (d) moderation, (e) not sick often, and (f) social interactions.

(a) ***Activity.*** A healthy person was described as engaging in activity with minimum to no assistance. This category identified the need for kūpuna to move with minimum to no assistance. As one kupuna said:

"*To me a healthy person is one who can do anything with your eyes, your mouth, and your hands. You can do anything with that if you're strong. You can do anything with your body. You can work."*

(b) ***Balance in Life.*** A healthy person has balance in life of the mind and body. Two kūpuna commented:

"To me a healthy person...includes well-roundedness. You have to really be centered. There is spirituality to it. There's the emotional, the psychological. I think if all of that is pono [righteous]and in balance, then you are healthy. But I would say someone that has all of these pieces balanced and in place and they feel good about themselves, that person would be a healthy person."

(c) ***Cognition.*** The ability to make good choices and keep the mind active was important to kūpuna and their cognitive well-being. Kūpuna mentioned:

" You have to keep that mind going…"

"…You have to be mentally competent. Make good judgments like in your food, exercise…"

(d) ***Moderation.*** Being able to have control and eat in moderation is a sub-category of healthy person. Kūpuna recognized the value of sensory taste and the ability to be disciplined and stay in moderation. One kupuna shared:

"So you have to watch yourself. If you see something you like, you can eat it, but just don't overeat. I not going eat this, I not going eat that and you try to learn to stay away. Stay away from things that will make your blood pressure go up."

(e) ***Not Sick Often.*** Kūpuna identified that food, free from illness, hygiene, and no pain helped them to stay well and not get sick often. Kūpuna summarized:

"You are what you eat. What goes into your body creates the individual that consumes it. So you need to be careful of the items that go into your body."

"A healthy person would be someone who is able to just by the types of foods that they are eating, exercise, etc. and maybe with minimum vitamins that you take over the counter, you're able to stay out of the hospital as much as possible."

"But now, I hardly catch cold. I must be washing the hands or something."

"I describe a healthy person with no pain."

(f) ***Social Interactions.*** The social interactions with family and friends were important in their daily lives. The connection and relationships were essential to being a healthy person. Kūpuna conveyed:

"Basic things as human beings that we need are the relationships with families and others."

"One who is able to interact with family and friends. One who is able to maintain that connection with other people. I think that helps you to be a better person and able to interact with others."

(2) Good Health. Good Health was the second category which led to four sub-categories: (a) concern for health, (b) monitor, (c) functioning, and (d) mind and body.

(a) ***Concern for Health.*** Being focused on health and chronic disease management was essential to maintaining good health. One kupuna verbalized:

"So, for me, good health is seeing your doctor regularly, getting your eyes checked so you have good vision. Going to the dentist. Just doing everything on a regular basis and doing maintenance and doing what your health provider is telling you to do. There's no sense in going to the doctor and then not listening to what they say."

(b) ***Monitor.*** An active role in good health is monitoring chronic disease/illness and eating, exercising, and medication management. Kūpuna identified that they had to be proactive in their healthcare to maintain good health. Two kūpuna responded:

"I think there are many keys to good health. You know, like I said, watch what you eat, exercise, make sure you go to your doctor, and take your medication."

"A healthy person would be one that would watch what they eat, do exercise, and make sure you take care if you have high blood pressure or cholesterol. Make sure you take your medication."

(c) ***Functioning.*** If kūpuna were in good health, they were physically able to function and accomplish goals of travel, caring for grandchildren/pets/self, exercise, and socialization. These all contributed to good health. Kūpuna remarked:

" Then you know especially, as we age, we want to travel and we have more time."

"I think what has really, really helped me is having my granddaughter here. She has put me back on schedule. So I have come to the conclusion that if I set a schedule for myself, I am alright. If I don't have a schedule, I get more laid back."

"... I go downstairs and go play with my dog and then I feed her. Then we play in the yard, pull weeds, and do whatever she wants to do until she's ready to come in..."

"Good health is when you can control what you eat, control what you think, and control what you do."

"I would say that you need to take care of yourself, to be a good person, to be kind, to show mercy. Those are all the things to be healthy. It not only makes other people feel good, but you feel good about yourself."

"You exercise maybe at least three times a week with walking. You do things to keep your heart going and to be healthy. So you don't become wheelchair bound."

"You have to be among people. I like to go out and mingle with people."

(d) ***Mind and Body.*** Stress played a big role in affecting one's ability to be in good health. Kūpuna emphasized the need to minimize stress. One kupuna stated:

"But you need to put your brain and your body to work. You must live in an environment that is somewhat removed from stress although you cannot totally remove the stress."

(3) Daily Routine. Daily routine was the third category that led to the sub-categories of (a) activity and (b) time. Kūpuna shared about the many activities that consumed their days and were woven into their lifestyle. Attending and participating at church, cleaning, community service, driving, employment, entertainment, exercise, keeping up with current events, social interactions, and yard work/gardening were part of their daily routine.

(a) ***Activity.*** Kūpuna discussed many of their activities that they were involved in.

Church. One kupuna commented:

"We come to the church and do our outreach over here on Tuesdays and Thursdays. But I usually come Tuesdays to help for a little bit and then I go to my Seniors group."

Cleaning. The cleaning ranged from doing the dishes, ironing, laundry, and general house cleaning. The men and women took part in the cleaning chores. Two kūpuna mentioned:

"Come tomorrow, the sink is full of dishes. So I am washing up the dishes, putting it all away, and cleaning up the house. Sometimes I vacuum."

"I got to wash clothes everyday and the dishes have to be done every day. My wife vacuums and we do all those kinds of chores."

Community Service. One kupuna revealed:

"I volunteer. I don't sit at home and be a couch potato. That makes a healthy person."

Driving. One kupuna disclosed:

"I'm driving everywhere. I drive all my friends to where ever we need to go. If we have any function, I do all the driving because nobody wants to drive. Or they just don't feel comfortable about going outside of the community or if we're going somewhere far."

Employment. Three kūpuna were employed part-time. They had retired, but decided to return to employment. One kupuna shared:

"They pay me good but by the same token, I take care the truck and I do all the other things the other drivers wouldn't do."

Entertainment. Kūpuna did make time for entertainment. They were interested in watching movies, music, puzzles, reading, and watching television. Kūpuna verbalized:

"One of my kupuna friend, we go to the movie together and then we have lunch together."

"To keep my mind active, I do a lot of word puzzles."

"Sometimes I will read. I borrow books from the library. They discard books and I bring them home to read. Reading keeps me busy."

"I love the Korean program. After that's done about 11pm, I do word puzzles for about an hour, and then I go to bed."

Exercise. Kūpuna had varying interests when it came to exercise. They were doing aerobics, golf, sports, swimming, walking, weightlifting, and yoga. Kūpuna divulged:

"I do weightlifting, aerobics, and basically trying to keep my muscles and bones toned so that I can continue to play golf."

"I have been swimming for twenty years."

"I go walk too. I go Ala Moana beach and walk around. I like to walk down at the beach in the sand."

Keeping Up with Current Events. The use of newspaper, television, and Facebook were three modes of media to keep up with current events. The majority of kūpuna favored reading the newspaper and watching the news. One kupuna logged into Facebook a few times a day to keep up with people and events. Kūpuna conveyed:

"For about one hour, I check my email and I check my Facebook."

"I like to get caught up on the news, current events."

"I like to watch news. Sometimes I watch the 9 o'clock news, the 10 o'clock news. I like to watch the mainland news. The mainland one is constantly on. [It is on] Channel 109, Channel 113. I get hooked on that too. I like to know what is happening."

Social Interactions. Kūpuna responded:

"In the evenings, I come out in the living room. We talk and I help my grandkids with their homework. Then I go downstairs and there are chores that have to be done."

"I still go out during the week for meetings, like with my other friends that I work with. We sometimes will go to have lunch together."

Yard Work/Gardening. Kūpuna shared:

"Gardening. I am always in the yard. You know it's my space. It's my passion. When I see them growing, I 'mahalo ke akua' [thank God] for keeping them. When I see the plants dying, I don't give up. I talk to them and I play music for them."

"I got to check the beans. When I plant beans, I got to check the beans every morning. They are going to mature. You leave them too long, two days sometimes, they come too hard and you got to throw them away. So I check my garden every morning."

(b) ***Time.*** The kūpuna followed schedules and routines. They had a morning, afternoon, night, and weekend routine. On the weekends, Saturday or Sunday was a designated day to relax.

Morning Routine. The majority of kūpuna were early risers. They started early with a daily routine. Kūpuna stated:

"I go up stairs. I do it seven days a week. Contact with your family. Every morning, I go upstairs to have my coffee. That is my way of saying hello and good morning to everybody. We sit and we talk."

"Yes. It is like clock work. I have to open up church everyday. I wake up at 5. I leave the house by 5:30am. I pick up two ladies and I bring them here to church. Right after that, my daughter-in-law drops off the grandkids here at the church and then I am taking them to school."

Afternoon Routine. Kūpuna said:

"But in the afternoon, I usually read my paper from say 11:00am to 1:00pm. I do my crossword puzzle and then I check my emails again and Facebook. I see what's going on. Then I get ready for dinner, you know."

"I come home and have lunch. I walk the dog again. I do the chores around the house like mow the yard."

Night Routine. The majority of kūpuna slept early. This was part of their daily routine. Kūpuna revealed:

"Usually, I'm upstairs by 9:30, 10:00 o'clock. We are both early sleepers and that's why we are early risers."

"No later than ten o'clock. Sometimes even earlier if I had a long day or a hard day. I'll go to sleep at nine o'clock. Well actually, I'll turn off the lights and I'm watching T.V. for a little while and then I find myself out. But I don't have any trouble falling back to sleep."

"I'm usually in bed by nine. I'm usually, you know, locking up and putting my dog to sleep by nine."

Weekend Routine. Kūpuna mentioned:

"My weekends. Actually I get up earlier that when I work. I will have a little breakfast and clean up at home or we will make plans to go to a movie or to lunch."

"Sunday is my relax day. On Saturdays, we might go to Costco and things like that. There is nothing exciting at our age. All we do right now is care for each other."

"A lot of times on Sabbath (Saturday), I will take my nap [and rest]."

(4) Food Choices/Preferences. Food choices/ preferences was the fourth category that led to the sub-categories of (a) diet, (b) drinks, and (c) foods.

(a) ***Diet.*** Diet led to personal preference and multiple diet choices such as: (I) Castle

Medical Center Weight Loss Program, (II) Gluten-free, (III) Low Salt, (IV) Ornish program, (V) Vegan, (V1) Vegetarian, (VII) Consumption, (VIII) Portions, (IX) Who Cooks, and (X) Who Shops.

Personal preference. Kūpuna discussed:

(I) Castle Medical Center Weight Loss Program.

"Now with my husband, I'm trying to fix him good meals. He is on the Wellness Program at Castle because he has diabetes."

"So when he comes home, I fix his breakfast. So just recently he started the Wellness Program at Castle. So he wants me to make him oatmeal, wheat toast, and a soft boiled egg. This is good because I jump in on the same thing."

(II) Gluten-free.

"My husband would try it. If I make the spaghetti with Boca burger he would eat it. I would use whole wheat pasta. I found all kinds of gluten-free foods from Costco. That's how I shop and my snacks were always Ornish friendly."

(III) Low salt.

"I don't salt anything that I eat. I don't add salt to anything because a lot of the food that we buy has salt. Anything canned has salt, so I don't need salt."

(IX) Ornish reversal program.

"I had been through a program called the Dr. Ornish Heart Reversal Program. I eat only plant-based food. This is something that came years after I was eating all of the fat. I haven't eaten meat for the past year."

(V) Vegan.

"My brother made veggie lau laus because his daughter started to go vegan because they saw what it did with me. One of the daughters lost weight by going vegan."

(VI) Vegetarian.

"I really love it. I love eating vegetarian things. So if you can cook anything veggie, that would be my favorite, without adding too much oil to it. My brain will say that it will be the fried stuff, but I really do love the vegetarian dishes."

(VII) Consumption-order of foods eaten.

"The other thing too is I eat my salad last. I don't eat the salad at the beginning of the meal. What is the remedy for that? Your roughage. Get your roughage to help the food get through. The other thing too is sushi. You know the sushi with the tuna. That is the worst way to eat because you are mixing carbs with proteins. If you are going to eat protein, eat protein with salad. If you are going to eat carbs, eat carbs with salads. Don't mix the two because your stomach needs time to digest."

(VIII) Portions-size.

"Eat properly and don't stuff yourself too much. Main thing is to watch what you eat."

(IX) Who cooks- Majority of kūpuna cooked for themselves on their own. They were involved in their food preparation. Kūpuna commented:

"I do my own shopping and I do my own cooking."

"Yes. I'm cooking for the whole family. Yes. Every night. We try to make a lot so we have leftovers for a couple of days so I don't have to constantly be at the stove. But last night was good because my husband chipped in and he made dinner."

(X) Who shops- Majority of kūpuna shopped for themselves on their own. They were involved in their food choices and food preferences. One kupuna said:

"I usually do my own and cook on my own. Yeah. I choose what I want. And I shop for myself. Yes."

(b) ***Drinks.*** Majority of the kūpuna drank a lot of water. They also drank coffee, tea, juice, milk, but only a few drank beer and wine.

Personal preference.

(I) Alcohol-beer, wine.

"Maybe I may have a can or two of beer a night."; "I have wine every night. That is my one. I have that. I have a glass. I really enjoy having that. Every evening as long as it's not raining, I go out on the lanai and I just sit there and have my wine and look over the ocean. I mean it's just very relaxing."

(II) Coffee.

"I drink coffee in the morning and then I make something for breakfast- usually fried eggs and some kind of fruits like bananas or oranges."

(III) Juice.

"I drink guava juice. That is my favorite juice to drink. I also drink orange juice and water."

(IV) Milk.

"I love milk. In fact, I'm always buying the milk… I don't mind the almond milk or the soy with vanilla. It doesn't matter if it is 1% or 2%....I just drink milk. I love it… I love cheese too… I'm not that into ice cream."

(V) Soda.

"I don't drink soda."

(VI) Tea.

"In the evening, I always like to have a cup of tea. Right now my favorite tea is the green tea with ginger. I go through phases and try different teas."; "I always drink Mamaki tea or Koʻokoʻolau tea. I always do that. I never drink anything else but that. I don't drink coffee."

(VII) Water.

"The only thing I drink when I was talking about health is alkaline water. I only drink alkaline water. I don't drink bottled water. You see that bottle water over there it is full of chemicals from the plastic. I have an alkaline machine that produces alkaline water."; "I keep two quarts of water in the ice box and I just drink it. Every time I think about it, I go get it. I have it sitting right in front of me so I am constantly drinking my water."

(c) ***Foods.***

Personal preference. Most kūpuna loved their fruits and vegetables. They had a wide variety of lettuce, cucumbers, and taro. Taro is the vegetable for poi. They liked to have complex grains with increased fiber. They have a wide variety of different proteins. Many did not eat red meat. They gravitated to morning yogurt. They stayed away from most dairy. They did not eat rice or bread, salt or sugar, nor white bread or white rice. Sandwiches were a popular choice, especially tuna sandwiches. They also enjoyed their desserts. Kūpuna preferred:

(I) Vegetables.

"I grow Manoa lettuce, tomatoes, beans, and cucumbers. Another thing that is fun to grow is spaghetti squash. That thing is fascinating the way you cook it. My wife likes it. She enjoys cooking it and mixing it with different things."

"I eat vegetables everyday. I have a bowl of lettuce, tomatoes, cucumbers, etc. everyday."

"We have to have vegetables. I can't have my dinner without vegetables. We eat all kinds of lettuce-green one and purple one. We have vegetables with everything. Cherry tomatoes or even big slice tomatoes. We eat cucumbers, broccoli, and all kinds of vegetables."

"I love poi. I hardly eat rice any more."

(II) Fruits.

"I buy a lot of grapes, apples, and papaya."

"Oh yes! We have fruits in our yard. We have mountain apple, mango, ulu, and five fingers. All those fruits grow in my yard."

"I load up on my fruits. I have melon, pineapple, pre cut. I'll buy it cut and leave it in there. Sometimes, I am really not hungry but I know I should eat. So that's when I end up eating my fruits."

(III) Grains.

"With the kūpuna program we always have brown rice. At home, we have fried rice, white rice or sometimes poi."

"I love to eat oatmeal. I can put the milk in the cereal. So I have that every other day. I like that. The oatmeal has fiber."

"Sometimes I will buy a little pork chop or beef, and just fry it up. I will eat it with rice. I make my rice with one cup white and half a cup brown."

(IV) Dairy.

"I like to eat Greek yogurt. My wife and I like yogurt."

"I have my coffee in the morning, yogurt, and fruit. That's my breakfast."

(V) Protein.

"My favorite is chopped steak. I have that once a month. I have a lot of fish and chicken."

"We ate lots of seafood. I remember having to pick limu and wana. We ate a lot of that."

"I also do a protein shake with vegetables and fruit and protein. I make it at home in a blender."

(VI) Desserts/Snacks.

"I love cookies. I always snack on cookies. Sometimes I eat cakes like that, but not all the time."

"I love snacks, yeah. I'm a chocoholic. Oh, I love my chocolates."

"Not too much dessert. Once in a while you know, I like a bear claw from Liliha bakery. That's about it."

(VII) Other: canned foods.

"If there is canned food at home, I will mix a can of tuna for lunch to make tuna sandwiches. I like to eat tuna sandwiches."

(VIII) Other: sandwiches.

"For lunch, we have a simple sandwich. There is bread, lettuce, tomatoes."

"For lunch, I love a good sandwich."

(IX) No red meat.

"I was involved [in a class] for Hawaiian male health. They had a survey and they said, "Of all the active groups, the Hawaiian men is number one dying." So in the class, you had to give up alcohol, give up cigarettes, give up red meat, or give up something. But I already went quit drugs, I already went quit cigarettes, I cut back on my booze. In fact, I don't really drink a lot. Recently I started having a glass of wine every now and then. But I realized, I guess I can cut back on red meat because there are so much other things I can eat. There's turkey, there's chicken, there's fish."

(X) No dairy.

"I try to stay away from the dairy products. I used to be a heavy yogurt eater, but even that causes me to produce phlegm. I try not to eat ice cream. But if I do, I eat in the early afternoon."

(XI) No rice. No white bread. No salt. No sugar.

"What you eat, stay away from salt, stay away from sugar. Anything white, yeah like flour, bread and rice, yeah. You know, I find by eating those things it makes me very thirsty. I bloat up because I'm so full of water, yeah. So, that's why I try and stay away from sweets and chips, and stuff like that, you know. I'll sneak them now and then, but I cannot do that anymore. I used to live on that, but I cannot do that anymore."

(5) Native Hawaiian Cultural Values, Traditions, and Practices. Native Hawaiian cultural values, traditions, and practices was the fifth category with three sub-categories: (a) cultural values, (b) cultural traditions, and (c) cultural practices.

(a) ***Cultural Values.*** The Native Hawaiian cultural values that have been passed on from their ancestors and carried on by kūpuna were: (I) connection to place, (II) do not take more than you can eat in nature, (III) family bonding, (IV) pono, (V) respect, (VI) humility, (VII) sharing knowledge with others and pass on, (VIII) spirituality, (IX) true to self, and (X) work ethic. The cultural values were deeply rooted in the Native Hawaiian culture and connected the kūpuna to the food, land, and ocean.

(I) *Connection to Place.*

Food, Land, Ocean. Kupuna shared:

"We either had the ocean for our food or the mountain."

"My father would go out and get the squid for the luaus. He was so one with nature."

"We would get taro to make our own poi (pounded taro) and we would plant our own vegetables and fruit."

"And so, we were raised to work the land, the taro land, yeah. My dad would pound the poi and my mom would go and pick all the fern."

"My mother always told me, you know like kumu (teacher) was saying, "You don't own the trees. It's a living thing. You need to ask permission, and the people here before you, you know you're ancestors." So that's pretty cool. We doing what our ancestors used to do. So we making pa'i'ai (thick poi) and the papa (board) and the pohaku (stone) for make food for your family."

"We used to go down to the river and it used to be so cold. We used to get red opae (fresh water shrimp). You remember, that red opae. They don't have that anymore, yeah. After we work the taro patch, we would go to the river with my mom and my two sisters."

(II) *Do not take more than you can eat in nature.* Two kūpuna commented:

"The cultural practices that I adhere to today is that when you go down to the beach and you catch fish, you don't take more than you can eat."

"When you pick opihi (limpet),…You pick the opihi that is the right size. Don't pick the real big ones that are in the ocean because that's the ones that lay eggs.".

(III) *Family bonding.* One kupuna vocalized:

"We need to show kindness, show mercy, forgive. You need to forgive and be forgiven. I think it is not new that our culture has all of these practices in place because it's something that preserves your culture. It is making sure that you keep up how you live. Take care of each other and preserve that. I think it's in every culture."

(IV) *Pono (righteous).* Two kūpuna shared:

"Do the things that is pono, yeah. You learn things that are honest, well, good, you know. All the things that go with life that makes things work."

"Some of the values that I really appreciate is the value of making whatever I do pono. I am not infringing upon others, not causing any pilikia (trouble)."

(V) *Respect.* Kūpuna stated:

"I was brought up Hawaiian by my parents who taught us to be respectful of everything around you-people and plants."

"You just respect people like what the Hawaiians have put in place all these years and if it shows pro-humane treatment, I'm for it. It just makes sense that everybody should take care of each other."

(VI) *Humility.* Two kūpuna expressed:

"So we try to live a good Christian life, you know. We try to do things to help others in need. We try to be humble."

"Being humble, you be last. But you get the rewards. The blessings will come. If you have your priorities in the right order, it will be good."

(VII) *Sharing knowledge with others and pass on.* Kūpuna expressed:

"I think that's one of the unique things about being Hawaiian, yeah. As we age, we just want to share."

"Well, hopefully I am empowering some wisdom and guidance to my grandchildren."

"Part of the cultural values that we inherited is to share with others and pass it on."

(VIII) *Spirituality.* Kupuna proclaimed:

"I appreciate the different spiritual world that Hawaiians have and I truly feel that we have a culture different from the mainland culture."

"Yeah, it's a cultural thing and it's very spiritual. So we learned to go into the forest and get stuff that we need. But you don't just take. You have to ask permission. You have to make a protocol and pray and ask permission for what you want."

(IX) *True to Self.* One kupuna vocalized:

"For me living in homestead, it just confirms who I am. But for me, it just confirmed, I am Hawaiian. That's a big deal. I know who I am! That's what it means to me."

(X) *Work Ethic.* Kūpuna commented:

"I worked for thirty something years. It was a very satisfying career for me."

"One thing that my parents always made us do is work. They would say, "You got to work in order to live."

"I worked 3 jobs for my kids. I don't have an education, but I worked."

(b) **Cultural Traditions.** The cultural traditions and customs passed on from generation to generation were inherent in Native Hawaiians. Lauhala (leaves of the hala tree) weaving and making board and stone to prepare food was a skill taught by artisans. The traditions included (I) arts and crafts, (II) chanting, (III) hula, (IV) language, and (V) music. Also, the traditions with (VI) food and family gatherings and (VII) gardening were recognized.

(I) Arts and Crafts. Kūpuna verbalized:

"Yeah. Like today, I just pau (finished) one other pohaku (stone). So we try to get involved with stuff that relates to our culture."

"The other thing I learned from my grandmother is how to make lauhala. I know how to clean it and I know how to make the strips and everything, yeah."

(II) Chanting. One kupuna stated:

"We are learning how to chant, different chants. So, it's on my phone. I am constantly listening to it while I am in the house. I have a [stereo system]and it's blue tooth. I can hear it on the [stereo system] and listen to it over and over again to learn the chants."

(III) Hula. Kūpuna verbalized:

"So I learned how to dance hula and we went all over. From that time on, I started to dance hula with the halaus (group)."

"My daughter and I also dance hula and that's one of our exercises. I just love what hula has brought into my life."

(IV) Language. Kūpuna revealed:

“My mother could speak Hawaiian fluently because she was raised with her grandparents in Kaupo. All Hawaiian. We wanted to learn, but during our time, English is what we had to focus on. So we only caught a little bit here and there.”

“So I did take Hawaiian language for two years at Windward Community College.”

“My daughters speak and teach Hawaiian and I don’t speak. But I’m the one with the most Hawaiian in the family you know what I mean. But I don’t know.”

(V) Music. Kūpuna disclosed:

“I love Hawaiian music. I love slack key. My mom could play the ukulele and sing. She was always the life of the party. I learned how to play the ukulele...”

"I play ukulele and autoharp. My husband used to play [the]autoharp and ukulele. He was real good on the autoharp."

(VI) Food and family gathering. Kūpuna expressed:

"In September, we entertained at a baby luau."

"But mostly I ate the poi and opihi."

“It will be the ten year death anniversary on Sunday. So a bunch of people will be getting together and just honoring his legacy.”

“I like when we have family reunions. That's good. We get ours on Moloka'i.”

“It was a good life when I was with my in-laws. They were real Hawaiian. You know, I didn’t know all about that. Every New Year, we would all get together and everybody would chip in. Like the old days. We would have the imu (underground oven) and open it that night and celebrate. Not like now they cook the food in the imu a week before the

party. You get up early in the morning and come back in the evening time and you just take it out."

Kūpuna mentioned:

"I am not really a cook. I enjoy Hawaiian food! I enjoy the luau leaf, the pig, lomi salmon, lau lau."

"My father was a fisherman, so we had a lot of fish on the table. Everything was from the ocean. We never snacked. If there were fruits in the refrigerator, we ate that like candy. There was never snacking in the house."

"One thing I remember is that there was always poi in this crock. It was filled all the time. There was always salmon, salt salmon in the icebox. I remember my dad eating so much raw fish. Every night he ate raw fish. Every night with poi."

(VII) Gardening. Kūpuna commented:

"When we were younger, we used to plant taro and sweet potato. Because we were young, we had to do the job. We lived in Waimalu and there was a stream that ran under our house. So with the stream, he used to portion out the water for the taro and the sweet potato."

"My father had a green thumb. He grew everything. My father was one with nature.; Our yard was always so green. The grass was always taken care of. The plants would grow."

(c) **Cultural Practices.** Kūpuna shared past and present use of complementary alternative medicine (CAM) in their daily lives. Much of the knowledge and use of Native Hawaiian medicinal plants has been passed on from their kūpuna to them. They have experienced the benefits to their health and therefore continue the utilization of CAM.

These were in the form of (I) Oils, (II) Teas, (III) Plants, (IV) Modalities. Kūpuna discussed:

(I) Oils

Castor oil. "We did take castor oil every Saturday morning. Castor oil and orange. We would suck the orange after taking the castor oil."

Cod liver oil. "My dad used to do juicing too. There was some terrible looking gray stuff that we had to drink…I used to have a spoonful of cod liver oil everyday…When my father first started, it was daily. There was no pouring it in the sink. We had to drink it…"

Eucalyptus oil. "During my days, it was all Hawaiian herbs. My grandfather took care of us. They used to use the oil from the eucalyptus tree and that was our medicine days. They used to boil it… We would undress and put the blanket over us. It would take all your sick away."

(II) Teas

Koʻokoʻolau tea. "I always drink..... Koʻokoʻolau tea. I always do that. I never drink anything else but that. I don't drink coffee."

Mamaki tea. "Well, the doctor is very pleased. I go to Ke Ola Mamo and she is very pleased with the results. I drink three cups of Mamaki tea. So the doctor told me that whatever I am doing, keep it up. I think it is due to the Mamaki tea."

(III) Plants

*Guava shoots. "*Yes. Chew a guava shoot to stop diarrhea. Who could have thought of it? It is so amazing."

Pōpolo berry plant. "She practiced all these Hawaiian remedies. I started having my sinus problems when I was young. She is no longer here so she cannot treat me. But she treated me for my sinuses all the way through. She used the leaves from the pōpolo berry plant. She made a juice out of it. It used to hurt me, but it worked. It just drained out all of my sinuses. I was supposed to have surgery when I was ten years old. When she found out, she said, "No, no, no. You come and we are going to get you better." She really believed in the Hawaiian medicines that she treated us with."

'Uhaloa."Even with the medicinal plants. The Hawaiians would dig up a root, scrape it and wash it and chew it for sore throat. The 'uhaloa. I raised my kids up on that. That was what I was taught."

(IV) Modalities

Deep breathing. "And another thing that I do a lot, it's not meditation, but I breathe really strongly in and out. I just do that for like a minute you know. I just kind of calm myself if I feel that things are overtaking my thoughts or something."

Massages. "I used to do massages once a month. I go to see my doctor for an annual check up."

Meditation. "I do some meditating in the back of my yard. You see the big green chair under the tree. I meditate over there."

Prayer. "When I go swim every morning, we pray before we go in the water. We pray to make sure that everybody will be safe because it's not your place. We don't own the beach, so we have to ask permission and ask for guidance. So, that's what the board and stone is about. But we already was in that level of praying and appreciating."

"I am reading my devotion be it bible study, bible, etc. I have my prayer time, my meditation."

Humor/laughter. "You know, everybody should laugh everyday because it is really good for your health."

(6) Key to Living Well. Key to living well was the sixth category with nine sub-categories: (a) acceptance, (b) decrease stress, (c) faith, (d) holistic view of living well, (e) resilience, (f) sense of independence, (g) thinking positive, and (h) thriving.

(a) ***Acceptance.*** Kūpuna shared:

"I would say succinctly, it would be "to love and be loved" is the key to living well."

"I think the key to living well is being able to accept yourself. Your failures, your accomplishments and don't live with regrets."

(b) ***Decrease Stress.*** Kūpuna emphasized:

"No stress. Don't worry about stuff you cannot fix, you know. Why stress yourself out. When it happens, then now we gotta fix it."

"The rest of the energy will go with you. But you need to get rid of stress!"

"See what you have to do and follow the directions that he gives you. And then exercise of course. Try to stay away from stress. Stress is another thing that will bring down your health."

(c) ***Faith.*** There was an overwhelming majority of kūpuna who shared about their faith and the impact their (I) belief, (II) blessings, and (III) purpose have to living well. The belief in God was important and a foundational pillar to their way of life. They also expressed being

thankful for blessings and peace. Having a purpose gave direction and focus in impacting the life of kūpuna and others.

(I) Belief. Kūpuna revealed:

"But if you have faith in the Lord, not everybody does, but if you have faith in God, that is going to help you. If you have a stressful incident that might happen, just offer it up to the Lord. Just say, "Lord I can't handle this right now, you take care of it." That will also help with living well."

"In my belief, God is #1, others is #2, and I am #3. So in my daily devotion, I ask God to make me a servant for that day. For me, a healthy person is one who loves God and who is serving others in Jesus name."

"He is the only one who can help you. He helps you by giving you peace. It is not necessarily that he will be taking the sickness away. But he helps you in his own way. For me, I felt that he gave me that calmness and peace. Also, telling me to just move on with your life."

(II) Blessings. Kūpuna commented:

"Whatever you have that you know you were given. Appreciate it every day. Every day I get up and I say, "Thank you Lord. I have another day of living." I make sure I enjoy every day."

"It is my faith. My faith. To be happy and have peace with who you are and what you have. It took me years to find that. You would think that when you get sick and have all of these health issues that you wouldn't find the peace. But, you know, that's where I found

my peace. You would think that I would be scared. I would be fearful. I would be upset. Instead, I am very calm about it. I have accepted it."

(III) Purpose. One kupuna divulged:

"We are not here on Earth by chance. I have come to that conclusion in my life. In fact, we are here for a purpose, whatever that purpose may be. We are given the opportunity to be here and interact with other people.

(d) ***Holistic view of living well.*** One kupuna summarized:

"You really have to be a good person inside and out. Your physical health really depends on the other parts-emotional, psychological, spiritual, mental. This all really affects your health. So, I think just making sure that your whole body, all of you, the whole person is balanced. Whatever is your passion, go for it. There are many times that I feel I am a failure, but I see my children and I see that they're good people and I think we did a good job."

(e) ***Resilience.*** One kupuna shared:

"So back to the key to living well, you have to accept what you are, how you are, how you got there. I had bumps, kicks, and punches on the way. But that's okay. That is what made me what I am today."

(f) ***Sense of independence.*** Another kupuna mentioned:

"I think that is the sense of independence you cannot replace, you know. When you are too sick, you have to have somebody help. I have a friend who doesn't go out anymore unless somebody takes her and she won't go out with people like me. Because I have to

park the car and then we both have to walk far, even with a handicap placard. It's an independence status that is critical."

(g) ***Thinking positive.*** Kūpuna said:

Everything begins with a thought. If you think healthy and you continue to think healthy, you're going to be healthy. Why do I say that? The reason is because the energy of the thought goes throughout your body. You need to "think wellness"."

"It's your mindset. You got to have your mind on that goal to be healthy."

"I think you need to have a positive attitude. You have to be happy. You have to find happiness. I have some friends who are not happy. For example, they are not happy in their marriage. They feel stuck and they can't get out. It shows in their whole personality. To me, happiness means a lot. You are happy. You are positive. You get out there. When I go walking, I see the island. I am so happy that I am Hawaiian. I am so happy to be born here. What a beautiful place to be born and raised. Yeah."

(h) ***Thriving.*** Kūpuna expressed:

"The key to living well is to make sure you eat well and take care of yourself. Get enough sleep, enjoy life and live it to the best that you know how."

"Enjoy it. Grasp it. Do as much as you can with it while you are still alive. That is what's keeping me going besides my family."

From the six categories that have been discussed in length, there was one over-aching theme that emerged. The theme is: **Kūpuna and their *Thriving Lifestyle*.**

In this study, Native Hawaiian Kūpuna 65 years and older were found to have a thriving lifestyle. This is in contrast to the existing literature that focused on the presence of multiple

social and health disparities and low life expectancy for Native Hawaiians. Their thriving lifestyle was interwoven with Native Hawaiian cultural values, traditions, and practices. The cultural connection and identity of Native Hawaiian kūpuna was reflected in their views and perspectives of health and well-being. The ways of knowing and the knowledge which has been passed down from their ancestors were imbedded in their lifestyle. However, Native Hawaiian kūpuna have embraced the present and were open to the blending of old and new knowledge. They wanted to improve their health and well-being and had taken measures to be proactively engaged in their own health. Kūpuna were health conscious and adapted to change. They were resilient and had purpose and the will to thrive.

Chapter 5

DISCUSSION

Native Hawaiians have the lowest life expectancy of any ethnic group in the State of Hawai‘i (Browne et al., 2014; Hughes, 2001; Ka‘opua et al., 2011; Wu et al., 2017). As an indigenous group, Native Hawaiians have many social and health disparities that were identified and studied in the literature (Browne, Mokuau, & Braun, 2009). There were high rates of diabetes (Maskarinec et al., 2009; Juarez, Davis, Brady, & Chung, 2012), heart disease (Juarez et al., 2012), obesity (Maskarinec et al., 2006), and a short life expectancy (Browne et al., 2014; Wu et al. 2017) reported in this group.

Historically, Native Hawaiians were thriving individuals prior to Western contact. They were strong and superior in physique (Hughes, 2001, p. 394). Based on the researcher's observation and life experience, there are Native Hawaiian kūpuna in Hawai‘i that have lived beyond the predicted life expectancy.

The purpose of this study was to explore nutrition and diet as it relates to the health and well-being of Native Hawaiian kūpuna in Hawai‘i. A focused ethnographic approach was utilized to obtain the perceptions of 21 kūpuna within a Hawaiian cultural context. In contrast to the current literature, this study portrayed a positive view of health and well-being through the lens of Native Hawaiian kūpuna 65 years and older. The main results were comprised of six categories: (a) healthy person, (b) good health, (c) daily routine, (d) food choices/preferences, (e) Native Hawaiian cultural values, traditions, and practices, and (f) key to living well. The overarching theme was: Kūpuna and their thriving lifestyle.

In the world, there are five “Blue Zones” that have a high concentration of longest-living people and centenarians. These “Blue Zones” are found in: (1) Okinawa, Japan, (2) Ikaria, Greece, (3) Ogliastra Region, Sardinia, Italy, (4) Loma Linda, California, and (5) Nicoya Peninsula, Costa Rica (https://www.nationalgeographic.com/.../5-blue-zones-where-the-worlds-). “Blue Zones” were started with a National Geographic expedition led by Dan Buettner collaborating with researchers, scientists, and journalists from around the globe to identify the secrets of longevity (Buettner, 2012, p. 4). With a survey developed in collaboration with the National Institute on Aging, lifestyle components were identified and the final results comprised of nine strategies for longevity were shared among the five “Blue Zones” (p. 5). This discussion will compare and contrast the study findings with the existing literature, “Blue Zones” findings, limitations, and provide implications for research, practice, and education.

Healthy Person

A healthy person was described by Native Hawaiian kūpuna as an individual who was active with minimum to no assistance, had balance in life, whose cognition was intact, moderation was key, not sick often, and nurtured social interactions. Kūpuna in this study defined and described the attributes of a healthy person.

Native Hawaiian kūpuna shared that they were active and mobile with minimum to no assistance. The study findings were consistent with the existing literature. In the literature, keeping busy and physically active were important for brain health and living a healthy lifestyle (Wilcox et al., 2009). Being engaged and participating in activities in the community led older adults to healthy aging in place (Bascu et al., 2009). Health and fitness activities were important in promoting the independence of older adults (Keller, 2009).

A balance of the mind and body was key to a holistic view of health and well-being. In a multi-ethnic study of community dwelling older adults, the elders emphasized the importance of having balance in life (Wilcox et al., 2009). McMullin (2005) stated, “a healthy Hawaiian included maintaining balance in life and knowledge about culture” (p. 815). She also recognized sustaining health by having family, work, play, and spirituality.

Cognition was important to Native Hawaiian kūpuna and their health. The literature was consistent with this finding. In the Nun Study on aging and Alzheimer’s disease there were 678 School Sisters of Notre Dame from across the U.S. (Snowdon, 1997). One nun named Sister Mary lived to 101.7 years. She taught until she was 84 years old and kept herself active in the community, read a lot, and spent time in prayer. She participated in yearly assessments of cognitive and physical function. The researchers in this study found her cognition was intact until the end of her life and “she was the gold standard for successful cognitive aging” (p. 151).

Intact cognition was important for healthy older adults in everyday functioning. Fissler et al. (2017) studied older adults and found improved visuospatial cognition in participants who engaged in cognitive activities such as solving jigsaw puzzles. Smith (2016) conducted “brain fitness” interventions that involved cognitive training and physical exercise to maintain high levels of cognition and functional integrity.

In a multi-ethnic study of healthy older adults, moderation with food and drink were important for balance in life and improved cognition and brain health (Wilcox et al., 2009). In the Okinawan culture, this was known as “hara hachi bu” which means that you should eat only until you were 80% full (Willcox, Willcox, & Suzuki, 2001, p. 86). This self-imposed caloric restriction was practiced by the Okinawans who were known to be the longest-lived population

in the world (p. 86). In contrast, Native Hawaiian kūpuna acknowledged moderation, but not caloric restriction in their dietary practices as it related to a healthy person.

A healthy lifestyle can be achieved when Native Hawaiian kūpuna "don't get sick often". In this study, a healthy person is someone who "does not get sick often", "eats good food", "are free from illness", "have good hygiene", and "have no pain". A delay in health deterioration and reduced mortality risk (Merrill, Myklebust, Myklebust, Reynolds, & Duthie, 2008) and increased longevity (Willcox et al., 2007) (indicators of health) are synonymous with being a healthy person.

In this study, social interactions with family and friends were very important to Native Hawaiian kūpuna and their health. In the literature, the lifestyle of older adults revolved around relationships with others that promoted healthy aging (Bascu et al., 2014; Montross et al., 2006; Tkatch et al., 2017). Socializing with others was a contributing factor to the longevity of healthy older adults (Gilbert, Hagerty, & Taggert, 2012).

In the Okinawa Centenarian Study, the researchers found that Okinawan older adults have social support systems that help them to thrive (Willcox, Willcox, & Suzuki, 2001, p. 282). The great benefit of companionship was seen in the establishment of "moai" which is a group of friends, relatives, or colleagues who meet regularly to provide financial, social, and emotional support for each other. They stay connected throughout their entire life span (p. 284). "Yuimaru" is the practice of "simply look[ing] out for one another and offer[ing] help almost by instinct" (p. 279). This practice is essential in Okinawan culture because it provided an opportunity for older adults to live in their communities while being active and independent as they aged (pp. 66, 279).

Good Health

In this study, Native Hawaiian kūpuna identified their concern for health and were able to adapt and monitor chronic disease/illness. They also functioned well at home and in the community by having the ability to travel, socialize, exercise, care for grandchildren, care for pets, and care for themselves. They also expressed the importance to minimize stress of the mind and body.

The findings of this study were consistent with the literature. Two studies pointed out that a key characteristic of resilience in older adults was adaptive coping mechanisms to recover from stressful events such as chronic disease/illness (McLeod, Musich, Hawkins, Alsgaard, & Wicker, 2016; Tkatch et al., 2017). According to Peralta-Catipon and Hwang (2011), community-dwelling older adults with a chronic disease were health conscious and utilized a daily self-management routine to deal with their illnesses.

Monitoring chronic disease/illness and learning to live with illness and medical treatment were essential to kūpuna in this study as they focused on good health by watching what they ate, doing exercises, and taking their medication. This was consistent with the literature.

In this study, Native Hawaiian kūpuna thought it was important to function at home and in the community to promote good health. Participating in activities such as travel and socializing with others contributed to healthy aging (Gilbert, Hagerty, & Taggert, 2012). Being able to exercise and move naturally lends itself to good health. This was congruent with one of the “Blue Zones” strategies that focused on moving naturally and being active without having to think about it. Centenarians in Sardinia, Italy were shepherds and outdoors for most of the day

while centenarians in Okinawa tended to their gardens for hours (Buettner, 2012, p. 267). In a study that examined successful aging in racial and ethnic minority women eighty years and older, who were happy and physically active, had the highest physical functioning scores (Cene et al., 2016).

Caring for grandchildren was associated with good psychosocial health for older adults (Adjei & Brand, 2018). Ethnically diverse grandparents who were actively involved in childcare and child rearing, helped to shape and develop the ethnic identity of their grandchildren (Kataoka-Yahiro, Ceria, & Caulfield, 2004). In another study, Native Hawaiian grandparents actively caring for grandchildren had a symbolic role as 'custodians of cultural values' in their families (Yancura, 2013).

In this study, multiple Native Hawaiian kūpuna cared for their pets (dogs). In the literature, participants increased their physical activity with dog walking and improved their health (Dall et al., 2017). Pet companionship was viewed as an activity to keep older adults active and aging in place (Bascu et al., 2014).

Caring for oneself promoted good health and longevity (Gilbert, Hagerty, & Taggert, 2012). Hwang (2010) identified self-care as one of the factors that could be a catalyst for successful aging.

Stress management was part of the core to a healthy lifestyle (Peralta-Catipon & Hwang, 2011). One of the "Blue Zones" strategies were listed as 'downshift' that focused on taking time to relieve stress (Buettner, 2012, p. 283). Centenarians living on Necoya Peninsula, Costa Rica socialized with friends and took a break daily in the afternoon. The Loma Linda Adventist centenarians observed the Saturday Sabbath and spent time focused on God, nature,

and their families all while reducing stress (p. 284). They experienced a greater sense of well-being and helped to create balance in other aspects of their lives (p. 285). In this study, a few kūpuna held the same beliefs as the Loma Linda Adventist centenarians and observed the Sabbath. Other kūpuna observed another day of the week as their day to relax and rest.

Daily Routine

In this study, Native Hawaiian kūpuna shared about their daily activities. They were engaged in attending church, cleaning, community service, driving, employment, entertainment, exercising, keeping up with the current events, social interactions, and yard work/gardening. They were efficient with their time and had routines for the morning, afternoon, night, and weekends.

The findings of this study were consistent with the literature. In the literature, church served as a source for social connections, volunteering opportunities, and a provider for health-related education (Fields, Adorno, Magruder, Parekh, & Felderhoff, 2016). Attendance and volunteering during church activities helped older adults feel connected and contributed to positive spiritual health and well-being (Dunn & Riley-Doucet, 2007). In contrast, Daaleman et al. (2004) found that spirituality versus religiosity was linked to better self-rated health of older adults.

Another “Blue Zones” strategy was belonging and participating in a spiritual community (Buettner, 2012, p. 287). Centenarians from the five “Blue Zones” belonged to religious communities and they had a faith belief. The majority of Sardinian and Nicoyan centenarians were Catholic. The Okinawan centenarians had a blended religion with ancestor worship. The Ikarian centenarians were mostly Greek Orthodox and the Loma Linda centenarians were

Seventh-day Adventists (p. 287). Attending religious services impacted the centenarians and other older adults by increasing self-esteem, increasing positive social networks, and promoting healthy aging (p. 288).

Housework activities (e.g. cleaning) were positively associated with health among older adults (Adjei & Brand, 2018). Native Hawaiian kūpuna in this study kept active with house cleaning, washing dishes, ironing, and doing the laundry. This was part of their daily routine. Some kūpuna expressed enjoyment with cleaning activities especially ironing with starch and seeing the finished product of a crisp crease on slacks and a crisp collar on an aloha shirt.

Older adults engaged in community service and volunteered as a key part to healthy aging (Bascu et al., 2014). In Black and Dobbs (2015) study on community-dwelling older adults, volunteering was an activity that helped elders engage in meaningful social opportunities. Native Hawaiian kūpuna volunteered in community service as part of their daily routine.

In this study, driving was an important activity for kūpuna. Driving gave them the ability to stay connected with others, have a sense of independence, and access to food, healthcare, and events. Being able to drive was a direct link to staying mobile and keeping connected with others on a daily basis (Bascu et al., 2014).

Three kūpuna in this study were employed part-time. They enjoyed returning and continuing to work after retirement. Full-time or part-time employment promoted socialization and productivity (Peralta-Catipon & Hwang, 2011). Being employed played a role in keeping older adults healthy and involved in meaningful activity (Gilbert, Hagerty, & Taggert, 2012).

In this study, kūpuna engaged in entertainment activities such as movies, music, puzzles, reading, and watching television as part of their daily routine. Participating in a variety of

activities for entertainment (e.g. reading, music) was related to higher levels of self-rated successful aging (Montross et al., 2006). Keeping active with a range of activities promoted healthy aging (Bascu et al., 2014).

In this study, kūpuna believed in keeping up with current events utilizing Facebook, newspaper, and television. Information about social interactions and connections with others took place on Facebook while local, national, and world news were found in the newspaper and on television. In the literature, the Internet and telephone were found to be supportive of social interactions with others (Bascu et al., 2014).

Yard work and gardening were daily activities that kūpuna were involved in. This ranged from a small garden in the back yard to 'weed wacking' a hillside to farming kalo (taro) in a lo'i (taro patch) down in Waipi'o Valley. According to Adjei and Brand (2018), gardening activities increased muscle strength and fitness level due to the physical exertion necessary to complete the tasks.

Native Hawaiian kūpuna were efficient with their routines for the morning, afternoon, night, and weekends. Kūpuna were early to rise and early to bed. Throughout the day, they kept a schedule and stayed on task with the many activities they were involved in. The findings of this study were consistent with the literature.

In one study, participants with an active lifestyle outperformed participants with a sedentary lifestyle in regards to everyday competence (i.e. daily routines, leisure activities, housekeeping) (Kalisch et al., 2011). In another study, researchers found that "daily routine facilitated functional status and well-being" (Ludwig, 1997). Maintaining basic routines in older adults were essential and may be associated with improved sleep quality (Zisberg, Gur-Yaish, &

Shochat, 2009). These findings were consistent with Native Hawaiian kūpuna who had daily routines that they followed.

Food Choices/Preferences

In this study, Native Hawaiian kūpuna were participating in programs (i.e. Castle Medical Center Weight Loss Program, Ornish Reversal Program) for weight loss and reversal of heart disease. They were also changing their diets and exploring ways to eat better and eat healthy by trying diets that were gluten-free, low salt, vegan, or vegetarian. They were also aware of food consumption, order of foods being eaten, and portion control. Kūpuna were cooking and shopping for themselves or with their spouse. In Wilcox et al (2009), older adults recognized that portion control was important for brain health. In contrast, Lassetter (2011) reported that Native Hawaiian migrant participants between 20 to 60+ years of age living in Las Vegas reported that Hawaiian-style food was essential to well-being, but harmful to their health. The concern regarding obesity was identified and the idea of "kanak attack" being a cultural practice of overeating to combat homesickness and promote well-being was mentioned (Lassetter, 2011).

In this study, kūpuna were aware of healthy food choices and avoided red meat, dairy, white rice, white bread, salt, and sugar. In contrast, the Multiethnic Cohort Study (Park et al., 2005) examined dietary patterns. The three dietary patterns identified in their study were: (a) fat and meat, (b) vegetables, (c) fruit and milk.

In the current study, Native Hawaiian kūpuna had a vast array of fruits and vegetables that they consumed. Sharma et al. (2014) reported that Native Hawaiian men and women had a limited intake of fruits and a high intake of vegetables.

In this study, Native Hawaiian kūpuna shared that they had an understanding and knowledge of healthy nutritional preferences. Furthermore, Native Hawaiian kūpuna were knowledgeable about different diets to improve their health by eating foods low in salt, low in fat, and eating in moderation. They knew these concepts and had a routine in their diet and nutrition.

In the literature, studies have described the positive impact of transitioning back to pre-Western traditional Hawaiian diet (Fujita et al., 2004; Hughes, 2001; Leslie, 2001; Shintani et al., 1991; Shintani et al., 1994). In the Waiʻanae diet program and the Uliʻeo Koa program, researchers found that it was difficult to access Hawaiian food. It was not feasible to sustain eating Hawaiian food, and there was a lack of variety (Shintani et al., 1999). In this current study, the researcher found similar results.

The traditional Hawaiian diet was utilized in the 1987 Molokaʻi Diet Study (Hughes, 2001), the Waiʻanae traditional Hawaiian diet program (Shintani et al., 1994), and the Uliʻeo Koa Program (Hughes, 2001; Leslie, 2001). These programs focused on improving cardiovascular health and obesity in addition to family/community involvement and cultural values/traditions with a pre-Western traditional Hawaiian diet being consumed (Fujita et al., 2004). In contrast, Native Hawaiian kūpuna in this study were open to new ways of eating to improve their health. They were willing to try new diets and new foods from other cultures (e.g. Indian and Vietnamese food that were vegetarian to improve their health). They were bold and daring to expand their palate to improve their health through their diet with a variety of food options and different ways of food preparation. Kūpuna were knowledgeable about the United States Department of Agriculture (USDA) food guidance system presented in the food pyramid

and now the MyPlate approach (www.myplate.gov); (www.nal.usda.gov). They are also aware of USDA food patterns and food groups, and healthy diets that have been recommended by health care professionals, found in the literature, or being advertised to the general public. They were keen to do their research and learned about what healthy diets may help them meet their goals whether it pertained to weight loss, improved cardiovascular health, and overall health and well-being. They have adapted and were willing to blend traditional knowledge with new knowledge when it came to food choices and preferences. Kūpuna in this study had integrated multicultural foods into their diet. They had customized their diets and food choices to suit their needs and preferences.

Native Hawaiian Cultural Values, Traditions, and Practices

Native Hawaiian kūpuna incorporated their cultural values, traditions, and practices into good health and aging well. They had a connection to their culture in appreciating and upholding values, traditions, and practices taught to them by their ancestors. This oral tradition of passing down knowledge was evident in the rich dialogue and experiential knowledge that they possessed. Viewing health and well-being within a cultural context helped to define a healthy Native Hawaiian kūpuna with a deep connection to place that involves food, land, and ocean. Kūpuna valued family, being pono, having respect, and humility. These values helped to shape and mold how Native Hawaiian kūpuna interacted and engaged with others. Sharing of knowledge helps to instill the perpetuation of values for generations to come. The connection to the past has a deep spiritual resonance for Native Hawaiian kūpuna and their connection to their ancestors. Being true to self and being confident in their Hawaiian identity strengthened their

position in life and their health. They upheld a strong work ethic that transcended across their lives.

The findings in this study were consistent with the literature. Oneha (2001) reported that in 1998, the leaders of the Native Hawaiian Health and Wellness Summit remarked that the health of Native Hawaiians were inseparable from land, water, ocean, and air. As described by Oneha (2001), the connection to "place is much more than physical geography; it has context (events, cycles and patterns, scent, beauty), is living, provides security, cultivates and shares knowledge, and is open to the flow and use of energy (mana)." The ʻāina (land) is seen as a source of life for Native Hawaiians (McMullin, 2010, p. 114). The spiritual connection to the land and its power was integral to maintaining health because land has the ability to heal, care, and provide for its people (McMullin, 2010, p. 115).

Additional values such as 'do not take more than you can eat in nature' was aligned with the views of connection to place and respect. Family bonding was important and Native Hawaiian kūpuna emphasized caring for others were important to them. ʻOhana (family) was essential to the health and well-being of Native Hawaiian kūpuna (Davis, 2010). Pono (righteous) and respect were Native Hawaiian cultural values that were part of life for Native Hawaiian kūpuna (Davis, 2010). The sharing of knowledge with others and passing it on to moʻopuna (grandchildren) and others was recognized by Native Hawaiian kūpuna as important and necessary. McCubbin and Marsella (2009) emphasized "indigenous knowledge is vital to the future of peoples whose roots have long and rich histories".

For Native Hawaiian kūpuna, spirituality was a part of life. There was the spiritual component that originated from having a belief in a higher being, a belief in nature and the

connection to place. McMullin (2005) stated that spirituality needs to be kept in balance (p. 815).

Kūpuna identified with being Native Hawaiian. They were proud of their heritage and culture. McMullin (2010) shared from her fieldwork that Native Hawaiians who she interacted with "[made] it clear that their culture and identity as Native Hawaiians would not be erased" (p. 61).

Native Hawaiian kūpuna shared about being gainfully employed for many years in satisfying careers. They commented on having multiple jobs to meet the needs of their families. They continued to uphold a strong work ethic related to caring for others (Bascu et al., 2014).

Cultural traditions such as arts and crafts, chanting, hula, language, and music were expressive ways that Native Hawaiian kūpuna shared their culture. These traditions were unique to the Hawaiian culture and kūpuna were able to weave these traditions into their daily lives.

The cultural practices of using CAM and other modalities highlighted the vast knowledge that Native Hawaiian kūpuna have regarding oils, teas, herbs/plants, and other modalities to aid in promoting health and well-being. These practices have been passed down from generation to generation. The use of indigenous plants and the use of modalities from the past are still current today. CAM falls into several categories: oils, teas, herbs/plants, and modalities. The oils were castor oil, cod liver oil, and eucalyptus oil. The teas used were koʻokoʻolau tea and mamaki tea. The herbs/plants used were guava shoots, pōpolo berry plant, and ʻuhaloa. The modalities were deep breathing, massage, meditation, prayer, and humor/laughter.

In the literature, CAM use by older adults had a positive effect to the perceptions of quality of life and engagement with their health (Cartwright, 2007). Kealoha and Kataoka-Yahiro (2017) reported in addition to Western therapies, Native Hawaiian parents caring for their

children with asthma used Native Hawaiian CAM therapies. Suapaia (2017) reported Native Hawaiians with Type 2 Diabetes used CAM therapies to treat their chronic illness in addition to Western therapies. The CAM therapies may have been recommended by a health care professional or initiated by the patient. Some of the CAM therapies were Native Hawaiian remedies. This is an area that should be further studied.

Key to Living Well

In this study, Native Hawaiian kūpuna shared their thoughts regarding the key to living well. They believed that acceptance, decreasing stress, faith, a holistic view of living well, resilience, sense of independence, thinking positive, and thriving were essential.

The findings of this study were consistent with the literature. Kūpuna expressed acceptance and love for family and friends. The ability to find appreciation and meaning with social relationships was important. In the literature, a body-mind-spirit program conducted for older adults had participants keep an "appreciation journal" in which they recorded three things that they were thankful for on a daily basis. This action helped them focus on positive aspects of aging, social relationships, spiritual health, forgiveness, and happiness (Lee, Yoon, Lee, Yoon, & Chang, 2012).

Kūpuna identified that decreasing stress in life was necessary to living well. According to Peralta-Catipon and Hwang (2011), stress impeded living well. Kūpuna actively engaged in stress reducing strategies such as exercise and meditation. Some kūpuna also took a day off to relax which is consistent with the one of the "Blue Zones" strategies to relieving stress (Buettner, 2012, p. 283).

Many kūpuna had faith and a belief in God, blessings, and purpose in living well. Having faith in God was a coping mechanism in addition to social support from family and friends when dealing with tough issues (Tkatch et al., 2017). In Wilcox et al (2009), African American older adults reported that staying active and having faith was important in promoting brain health and living well. Dunn and Riley-Doucet (2007) found in their study that faith was a central theme in the health of community-dwelling older adults. The older adults shared that going to church, having faith in God, and prayer were important to them. Their religious beliefs with following Bible teachings helped them make healthier life choices that were the key to living well and longevity (Dunn & Riley-Doucet, 2007).

One of the "Blue Zones" strategies focused on having purpose and taking time to see the 'big picture'. This is part of the lifestyle for centenarians in Okinawa and centenarians in Nicoya Peninsula, Costa Rica (Buettner, 2012, p. 281). Having a sense of purpose may decrease stress and reduce chronic illness (e.g. Alzheimer's disease, arthritis, stroke). The Okinawans referred to sense of purpose as "ikigai" and the Nicoyans described sense of purpose as "plan de vida" (p. 281).

In Tkatch et al (2017), older adults had a holistic view of living well. This was consistent with Native Hawaiian kūpuna in this study that emphasized having balance in all aspects of life: physical, mental, emotional, psychological, and spiritual and viewing onself as a 'whole person'.

Native Hawaiian kūpuna in this study commented on having resilience through life and remembering the struggle that they experienced. In the literature, MacLeod, Musich, Hawkins, Alsgaard, and Wicker (2016), identified multiple characteristics of resilience.

Some of the characteristics were: (a) adaptive coping styles, (b) gratitude, (c) optimism/ hopefulness, (d) sense of purpose, (e) social support, and (f) independence. According to Montross et al (2006) and Tkatch et al (2017), resilience was characteristic of healthy aging and living well.

Kūpuna cherished their independence in making their own decisions and choosing what they wanted to do. At times, kūpuna mentioned the need to have independence was essential to living well. Black and Dobbs (2015) concluded that maintaining autonomy and independence in community-dwelling older adults gave them the ability to make their own choices and decisions. Participants recognized that maintaining independence was primary to successful aging and living well (Tkatch et al., 2017).

Kūpuna believed that if you were positive, happy, and healthy, you would be able to live well. This was consistent in the literature. Having a positive attitude and taking care of self contributed to living well (Gilbert, Hagerty, & Taggert, 2012). A sense of well-being with a positive attitude towards health and vitality improved mental health and living well in older adults (Jang et al., 2009).

Kūpuna identified that the key to living well was to thrive. Thriving was enjoying life and having the will to live. In a 10-year population-based study assessing factors associated with thriving in older adults, the results revealed that healthy behaviors such as no smoking and alcohol use in moderation were key to living well. In addition, having a healthy lifestyle with positive health behaviors early on in life such as lower psychological distress also promoted older adults to thrive (Kaplan et al., 2008).

Limitations

Limitations of this study were comprised of (a) small sample size, (b) convenience sample utilizing snowball sampling, (c) descriptive in nature, (d) episodic, and (e) comprised of one face-to-face interview and one follow-up telephone call.

Despite these research limitations, the researcher believes that this was an important foundational study. There were no studies that were specific to nutrition and diet as it relates to health and well-being of Native Hawaiian kūpuna 65 years and older in the existing literature. In Aluli et al (2009) study, the age range for the Molokai Diet Study was 19-88 years, with an average age of 46. The Waiʻanae Diet Program had an age range of 23-62 years, and the Uliʻeo Koa Program had an age range of 22-64 years. In the qualitative studies, Lassetter (2011) explored the role of food among Native Hawaiians in Las Vegas. The age range was 23-62 years with a mean age of 40. In McMullin (2005) qualitative study examining what it means to be a "Healthy Hawaiian", the age range of participants was 21-86 years with a mean of 45.4 years. In all of these studies, none focused specifically on nutrition and diet as it relates to health and well-being of Native Hawaiian kūpuna 65 years and older.

This study has helped to build a foundation of discovery and new knowledge (manaʻo) of nutrition and diet related to the health and well-being our kūpuna 65 years and older. Our kūpuna have the knowledge and wisdom to help Hawaiians find themselves in this ever changing world. Our kūpuna are the window to the past and the answer to the future. One needs to tap into this knowledge to hear their stories and their voices. There is so much to learn from our wise and revered elders. The negative aspect of kūpuna health has been highlighted in the literature. The multiple social and health disparities emphasized.

It is time to challenge the misconceptions that exist and to share the findings that Native Hawaiian kūpuna are thriving and living into their later years. This does not mean that they are free from chronic disease or illness. Our Native Hawaiian kūpuna in this study were willing to try new things to improve their health and well-being. They were connected to being Hawaiian. They knew who they were. One can learn so much from them. The researcher has learned so much from the Native Hawaiian kūpuna and humbled that they were open to sharing their manaʻo (knowledge).

Implications

The following implications of research, practice, and education on nutrition and diet as it relates to health and well-being of Native Hawaiian kūpuna 65 years and older.

Research. The most important finding of this study was that Native Hawaiian kūpuna 65 years and older are thriving. There are similar characteristics that kūpuna 65 years and older share. Their thriving lifestyle is filled with activity, social engagement, schedules and routines, and eating well. This lifestyle is described within a Native Hawaiian cultural context. Future research include further exploration of kūpunas' perception of nutrition, diet, health, and well-being through their lifespan. There is a need to explore how Native Hawaiian kūpuna have adapted to changes from childhood to adulthood across the lifespan related to their nutrition, diet, health, and well-being. The researcher would like to further assess critical periods in their lives which changed their behaviors towards a healthy lifestyle.

Future research should plan for a longer study with a larger sample size, use of a mixed method design incorporating physiological measurements from the quantitative perspective in addition to qualitative interviewing methods used in the current study.

Testing culturally sensitive and culturally focused intervention programs that promote nutrition and diet as it relates to the health and well-being of Native Hawaiian kūpuna is imperative. Kūpuna are role models and therefore are change agents. Utilizing the kūpuna as an intervention strategy will need to be further explored in future studies. Their stories may serve as motivators to change behavior and improve the health of other Native Hawaiian kūpuna and Native Hawaiians of all ages.

Practice. As a health care professional, the importance of health promotion and disease prevention is important. Health care professionals need to monitor chronic disease and illness, promote self-care, and support a "thriving lifestyle". This would be to encourage kūpuna to stay active and engage in a variety of activities, and promote healthy food and drink choices. Having discussions about daily routine is important and how that impacts their health is essential.

Providing care for Native Hawaiian kūpuna should be culturally sensitive and health professionals should aware of Native Hawaiian cultural values, traditions, and practices. Inquiring about CAM use and how that promotes health can help facilitate holistic care within a Hawaiian cultural context.

Education. Education on nutrition, diet, health, and well-being should be emphasized from a Hawaiian cultural context. Native Hawaiian kūpuna are knowledgeable about their health. They are open to new ideas and learning new ways of promoting health and well-being. The findings of this study should be shared with other kūpuna as well as Native Hawaiians of all ages.

In addition, educating nursing students and emphasizing the value and voice of our Native Hawaiian kūpuna is essential. Being culturally sensitive and having a foundation of

knowledge of cultural values, traditions, and practices of this indigenous group is imperative in nursing in Hawaii. It is important to have cultural empathy to serve the Native Hawaiian community in providing quality and culturally competent care.

References

Adjei, N. K. & Brand, T. (2018). Investigating the associations between productive housework activities, sleep hours and self-reported health among elderly men and women in western industrialised countries. *BMC Public Health, 18:* 110.

Albright, C. L., Steffen, A., Wilkens, L. R., Henderson, B. E., & Kolonel, L. N. (2007). Body mass index in monoracial and multiracial adults: results from the multiethnic cohort study. *Ethnicity & Disease, 17,* 268-273.

Aluli, N. E., Jones, K. L., Reyes, P. W., Brady, S. K., Tsark, J. U., & Howard, B. V. (2009). Diabetes and cardiovascular risk factors in Native Hawaiians. *Hawai'i Medical Journal, 68(7),* 152-157.

Bascu, J., Jeffery, B., Abonyi, S., Johnson, S., Novik, N., Martz, D., & Oosman, S. (2014). Healthy aging in place: Perceptions of rural older adults. *Educational Gerontology, 40,* 327-337. doi: 10.1080/03601277.2013.802191

Black, K. & Dobbs, D. (2015). Community-dwelling older adults' perspectives on what matters most: Findings from an exploratory inquiry. *Activities, Adaptation & Aging, 39(2),* 133-152.

Braun, K. L. & LaCounte, C. (2015). The Historic and Ongoing Issue of Health Disparities Among Native Elders. *Journal of the American Society of Aging, 38(4),* 60-69.

Browne, C. V., Mokuau, N., & Braun, K. L. (2009). Adversity and resiliency in the lives of native Hawaiian elders. *Social Work, 54(3),* 253-261.

Browne, C. V., Mokuau, N., Ka‘opua, L. S., Kim, B. J., Higuchi, P., & Braun, K. L. (2014). Listening to the Voices of Native Hawaiian Elders and ‘Ohana Caregivers: Discussions on Aging, Health, and Care Preferences. *Journal of Cross Cultural Gerontology, 29,* 131-151.

Buettner, D. (2012). *The Blue Zones* (2nd ed.). Washington, D. C.: National Geographic.

Cartwright, T. (2007). ‘Getting on with life’: The experiences of older people using complementary health care. *Social Science & Medicine, 64,* 1692-1703.

Cene, C. W., Dilworth-Anderson, P., Leng, I., Garcia, L., Benavente, V., Rosal, M., Vaughan, L., Coker, L. H., Corbie-Smith, G., Kim, M., Bell, C. L., Robinson, J. G., Manson, J. E., & Cochrane, B. (2016). Correlates of successful aging in racial and ethnic minority women age 80 years and older: Findings from the Women’s Health Initiative. *J Gerontol A Biol Sci Med Sci, 71,* No. S1, S87-S99.

Cruz, E. V. & Higginbottom, G. (2013). The use of focused ethnography in nursing research. *Nurse Researcher, 20(4),* 36-43.

Daaleman, T. P., Perera, S. & Studenski, S. A. (2004). Religion, spirituality, and health status in geriatric outpatients. *Annals of Family Medicine, 2(1),* 49-53.

Dall, P. M., Ellis, S. L. H., Ellis, B. M., Grant, P. M., Colyer, A., Gee, N. R., Granat, M. H., & Mills, D. S. (2017). The influence of dog ownership on objective measures of free-living physical activity and sedentary behavior in community-dwelling older adults: a longitudinal case-controlled study. *BMC Public Health, 17:496,* 1-9.

Davis, R. (2010). Voices of Native Hawaiian kupuna (elders) living with chronic illness: “Knowing who I am”. *Journal of Transcultural Nursing, 21(3),* 237-245.

De Chesnay, M. (2015). *Nursing Research using Ethnography: Qualitative Designs and Methods in Nursing*. M. de Chesnay (Ed.). New York: Springer Publishing Co.

DeSantis, L., & Ugarriza, D. N. (2000). The concept of theme as used in qualitative nursing research. *Western Journal of Nursing Research, 22(3),* 351-372.

Dunford, B., Andrews, L., Ayau, M., Honda, L. I., & Williams, J. S. (2013). *Hawaiians of Old-Nā Kānaka Maoli o ka Wā Kahiko*. Honolulu, HI: Bess Press.

Dunn, K. S. & Riley-Doucet, C. K. (2007). Self-care activities captured through discussion among community-dwelling older adults. *Journal of Holistic Nursing, 25(3),* 160-169.

Erber, E., Hopping, B. N., Grandinetti, A., Park, S., Kolonel, L. N., & Maskarinec, G. (2010). Dietary patterns and risk for diabetes: the multiethnic cohort. *Diabetes Care, 33(3),* 532-538.

Fetterman, D. M. (2010). *Ethnography Step-by-Step*. (3rd ed.). Los Angeles, CA: Sage Publicatons.

Fielding, N. (2001). *Researching Social Life*. N. Gilbert (Ed.). London: Sage Publications.

Fields, N. L., Adorno, G., Magruder, K., Parekh, R. & Felderhoff, B. J. (2016). Age-friendly cities: The role of churches. *Journal of Religion, Spirituality & Aging, 28(3),* 264-278.

Fissler, P., Kuster, O. C., Loy, L. S., Laptinskaya, D., Rosenfelder, M. J., von Arnim, C.

A. F., & Kolassa, I. (2017). Jigsaw puzzles as cognitive enrichment (PACE)- the effect of solving jigsaw puzzles on global visuospatial cognition in adults 50 years of age and older: study protocol for a randomized controlled trial. *Trials, 18:415,* 1-11.

Fujita, R., Braun, K. L., & Hughes, C. K. (2004). The traditional Hawaiian diet: a review of the literature. *Pacific Health Dialog, 11(2),* 250-259.

Gilbert, C., Hagerty, D., & Taggert, H. M. (2012). Exploring Factors Related to Healthy Ageing. *Self-Care, Dependent-Care & Nursing, 19(1),* 20-25.

Grandinetti, A., Kaholokula, J. K., Chang, H. K., Chen, R., Rodriguez, B. L., Melish, J. S., & Curb, J. D. (2002). Relationship between plasma glucose concentrations and Native Hawaiian Ancestry: The Native Hawaiian Health Research Project. *International Journal of Obesity, 26,* 778-782.

Hansen-Kyle, L. (2005). A concept analysis of healthy aging. *Nursing Forum, 40*(2), 45-57.

Hawaii-Rural Definitions: State-level maps-Economic Research. (n.d.). Retrieved from www.ers.usda.gov/datafiles/Rural_Definitions/…/HI.pdf

Hughes, C. K. (2001). Uli‘eo Koa-Warrior Preparedness. *Pacific Health Dialog, 8(2),* 393-400.

Hwang, J. E. (2010). Promoting healthy lifestyles with aging: Development and validation of the health enhancement lifestyle profile (HELP) using the Rasch measurement model. *American Journal of Occupational Therapy, 64,* 786-795. doi: 10.5014/ajot.2010.09088

Jang, Chiriboga, Borenstein, Small, & Mortimer. (2009). Health-Related Quality of Life in Community-Dwelling Older Whites and African Americans. *Journal of Aging and Health, 21(2),* 336-349.

Juarez, D. T., Davis, J. W., Brady, S. K., & Chung, R. S. (2012). Prevalence of heart disease and its risk factors related to age in Asians, Pacific Islanders, and Whites in Hawai‘i. *Journal of Health Care for the Poor and Underserved, 23,* 1000-1010.

Kaholokula, J. K., Saito, E., Mau, M. K., Latimer, R., & Seto, T. B. (2008). Pacific Islanders' perspectives on heart failure management. *Patient Education and Counseling, 70,* 281-291.

Kaholokula, J. K., Townsend, C. K. M., Ige, A., Sinclair, K. A., Mau, M. K., Leake, A., Palakiko, D., Yoshimura, S. R., Kekauoha, P., & Hughes, C. (2013). Sociodemographic, behavioral, and biologic variables related to weight loss in Native Hawaiians and other Pacific Islanders. *Obesity, 21(3),* E196-E202.

Kalisch, T., Richter, J., Lenz, M., Kattenstroth, J-C., Kolankowska, I., Tegenthoff, M., & Dinse, H. R. (2011). Questionnaire-based evaluation of everyday competence in older adults. *Clinical Interventions in Aging, 6,* 37-46.

Kaplan, M. S., Huguet, N., Orpana, H., Feeny, D., McFarland, B. H., & Ross, N. (2008). Prevalence and factors associated with thriving in older adulthood: A 10-year population-based study. *Journal of Gerontology, 63A(10),* 1097-1104.

Ka‘opua, L., Braun, K. L., Browne, C. V., Mokuau, N., & Park, C. B. (2011). Why are Native Hawaiians underrepresented in Hawai‘i's older adult population? Exploring social and behavioral factors of longevity. *Journal of Aging Research,* doi: 10.4061/2011/701232.

Kataoka-Yahiro, M., Ceria, C., & Caulfield, R. (2004). Grandparent caregiving role in ethnically diverse families. *Journal of Pediatric Nursing, 19(5),* 315-327.

Kealoha, M. K. & Kataoka-Yahiro, M. (2017). Mālama nā makua i nā keiki me ka hānō:

Native Hawaiian parents caring for their children with asthma. *Asian/Pacific Island Nursing Journal, 2(3),* 74-82.

Keen, D. & de Chesnay, M. (2015). *Nursing Research using Ethnography: Qualitative Designs and Methods in Nursing*. M. de Chesnay (Ed.). New York: Springer Publishing Co.

Keller, M. J. (2009). A holistic approach to developing fall-prevention programs for community-dwelling older adults. *Activities, Adaptation & Aging, 33(4),* 223-238.

Kim, H., Park, S., Grandinetti, A., Holck, P. S., & Waslien, C. (2008). Major dietary patterns, ethnicity, and prevalence of type 2 diabetes in rural Hawai‘i. *Nutrition, 24,* 1065-1072.

Koch, T. (1994). Establishing rigour in qualitative research: the decision trail. *Journal of Advanced Nursing, 19,* 976-986.

Lassetter, J. H. (2011). The integral role of food in native Hawaiian migrants' perceptions of health and well-being. *Journal of Transcultural Nursing, 22(1),* 63-70.

Lee, R., Onopa, J., Mau, M. K., & Seto, T. (2010). Diabetes care in a predominantly Native Hawaiian and Pacific Islander outpatient population. *Hawai‘i Medical Journal, 69(Suppl 2),* 28-30.

Lee, E. O., Yoon, H., Lee, J., Yoon, J., & Chang, E. (2012). Body-Mind-Spirit practice for healthy aging. *Educational Gerontology, 38,* 473-485.

Leslie, J. H. (2001). Uli‘eo Koa program. Incorporating a traditional Hawaiian dietary component. *Pacific Health Dialog, 8(2),* 401-406.

Liberati, A., Altman, D. G., Tetzlaff, J., Mulrow, C., Gotzsche, P. C., Ioannidis, J. P. A., Clarke, M., Devereaux, P. J., Kleijnen, J., & Moher, D. (2009). The PRISMA statement for reporting systematic reviews and meta-analyses of studies that evaluate health care

interventions: Explanation and elaboration. *PLoS Med 6(7)*: e1000100.doi: 10.1371/journal.pmed1000100.

Lincoln, Y.S., & Guba, E. G. (1985). *Naturalistic inquiry.* Newbury Park, CA: Sage Publications.

Ludwig, F. (1997). How routine facilities wellbeing in older women. *Occupational Therapy International, 4(3),* 215-230.

Maskarinec, G., Carlin, L., Pagano, I., Yamamoto, J., Shumay, D., Wilkens, L. R., & Kolonel, L. N. (2007). Lifestyle risk factors for chronic disease in a multiethnic population: an analysis of two prospective studies over a 20-year period. *Ethnicity & Disease, 17(4),* 597-603.

Maskarinec, G., Grandinetti, A., Matsuura, G., Sharma, S., Mau, M., Henderson, B. E., & Kolonel, L. N. (2009). Diabetes prevalence and body mass index differ by ethnicity: The Multiethnic Cohort. *Ethnicity & Disease, 19(1),* 49-55.

Maskarinec, G., Takata, Y., Pagano, I., Carlin, L., Goodman, M. T., Le Marchand, L., Nomura, A. M. Y., Wilkens, L. R., & Kolonel, L. N. (2006). Trends and dietary determinants of overweight and obesity in a multiethnic population. *Obesity, 14(4),* 717-726.

Macleod, S., Musich, S., Hawkins, K., Alsgaard, K., & Wicker, E. R. (2016). The impact of resilience among older adults. *Geriatric Nursing, 37,* 266-272.

Mau, M. K., Glanz, K., Severino, R., Grove, J. S., Johnson, B., & Curb, J. D. (2001). Mediators of lifestyle behavior change in Native Hawaiians: Initial findings from the Native Hawaiian Diabetes Intervention Program. *Diabetes Care, 24(10),* 1770-1775.

Mau, M. K., Wong, K. N., Efird, J., West, M., Saito, E. P., & Maddock, J. (2008). Environmental factors of obesity in communities with Native Hawaiians. *Hawai'i Medical Journal, 67(9),* 233-236.

McCubbin, L. D., & Marsella, A. (2009). Native Hawaiians and psychology: The cultural and historical context of indigenous ways of knowing. *Cultural Diversity and Ethnic Minority Psychology, 15(4),* 374-387.

McEligot, A. J., McMullin, J., Pang, K., Bone, M., Winston, S., Ngewa, R., & Tanjasiri, S. P. (2010). Diet, psychosocial factors related to diet and exercise, and cardiometabolic conditions in Southern California Native Hawaiians. *Hawai'i Medical Journal, 69(5 Suppl 2),* 16-20.

McEligot, A. J., McMullin, J., Pang, K., Bone, M., Winston, S., Ngewa, R., & Tanjasiri, S. P. (2012). Dietary intakes, obesity and health behaviors in Native Hawaiians residing in Southern California. *Hawai'i Journal of Medicine & Public Health, 71(5),* 124-128.

McMullin, J. (2005). The call to life: revitalizing a healthy Hawaiian identity. *Social Science & Medicine, 61,* 809-820.

McMullin, J. (2010). *The Healthy Ancestor*. Walnut Creek, CA: Left Coast Press Inc.

Merrill, S. J., Myklebust, B., Myklebust, J., Reynolds, N., & Duthie, E. (2008). A poisson-like model of sub-clinical signs from the examination of healthy aging subjects. *Aging Clinical and Experimental Research, 20(4),* 368-375.

Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. G. (2009). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA Group. *PLoS Med, 6(7)*: e1000097.doi: 10.1371/journal.pmed1000097.

Montross, L. P., Depp, C., Daly, J., Reichstadt, J., Golshan, S., Moore, D., Sitzer, D., & Jeste, D. V. (2006). Correlates of self-rated successful aging among community-dwelling older adults. *American Journal of Geriatric Psychiatry, 14,* 43-51.

Morimoto, Y., Schembre, S. M., Steinbrecher, A., Erber, E., Pagano, I., Grandinetti, A., Kolonel, L. N., & Maskarinec, G. (2011). Ethnic differences in weight gain and diabetes risk: The Multiethnic Cohort Study. *Diabetes & Metabolism, 37,* 230-236.

Muecke, M. A. (1994). On the evaluation of ethnographies. In Morse JM (Ed.). *Critical Issues in Qualitative Research Methods*. Thousands Oaks, CA: Sage Publications.

National Geographic. (2017). 5 "Blue Zones" where the world's healthiest people live. Retrieved from www.nationalgeographic.com/.../5-blue-zones-where-the-worlds-

Native Hawaiian. (n.d.). In *American Heritage Dictionary of the English Language* (5th ed.). Retrieved from www.thefreedictionary.com/Native+Hawaiian.

Office of Hawaiian Affairs. (1986). *Population Survey/Needs Assessment. Final Report*. Retrieved from. http://www.ohadatabook.com/Quantum-01.pdf

Office of Hawaiian Affairs: Native Hawaiian Data Book. (2015). *Native Hawaiian Population by Age and Gender in Hawai'i: 2010.* Retrieved from http://www.ohadatabook.com/T01-23-15.pdf

Office of Hawaiian Affairs: Native Hawaiian Data Book (2015). *Population by Race-Ethnicity in Hawai'i: U.S. Census 1900-2010*. Retrieved from http://www.ohadatabook.com/T01-06-15.pdf.

Oneha, M. F. M. (2001). Ka mauli o ka 'āina a he mauli kānaka: an ethnographic study from an Hawaiian sense of place. *Pacific Health Dialog, 8(2),* 299-311.

Park, S., Murphy, S. P., Martin, C. L., & Kolonel, L. N. (2008). Nutrient intake from multivitamin/mineral supplements is similar among users from five ethnic groups: The Multiethnic Cohort Study. *Journal of the American Dietetic Association, 108,* 529-533.

Park, S., Murphy, S. P., Wilkens, L. R., Yamamoto, J. F., Sharma, S., Hankin, J. H., Henderson, B. E., & Kolonel, L. N. (2005). Dietary patterns using the food guide pyramid groups are associated with sociodemographic and lifestyle factors: The multiethnic cohort study. *The Journal of Nutrition, 135(4),* 843-849.

Peel, N. M., Bartlett, H. P., & McClure, R. J. (2007). Healthy aging as an intervention to minimize injury from falls among older people. *Annals of the New York Academy of Sciences, 1114*, 162-169.

Peralta-Catipon, T. & Hwang, J. E. (2011). Personal factors predictive of health-related lifestyles of community-dwelling older adults. *The American Journal of Occupational Therapy, 65,* 329-337.

Polit, D. F. & Beck, C. T. (2008). *Nursing Research: Generating and Assessing Evidence for Nursing Practice* (8th ed.). Philadelphia, PA: Lippincott Williams & Wilkins/Wolters Kluwer.

Reeves, S., Kuper, A., & Hodges, B. D. (2008). Qualitative research methodologies: ethnography. *British Medical Journal.* 337 doi:http://dx.doi.org/10.1136/bmj.a1020

Roper, J. M. & Shapira, J. (2000). *Ethnography in nursing research.* Thousand Oaks, CA: Sage Publications.

Saldana, J. (2013). *The Coding Manual for Qualitative Researchers*. (2nd ed.). Los Angeles, CA: Sage Publications.

Sahyoun, N., Robare, J. F., & Liu, R. (2009). Perceptions and Beliefs about the role of physical activity and nutrition on brain health in older adults. *The Gerontologist, 49(1),* S1, S61-S71.

Sharma, S., Murphy, S. P., Wilkens, L. R., Shen, L., Hankin, J. H., Henderson, B., & Kolonel, L. N. (2003). Adherence to the food guide pyramid recommendations among Japanese Americans, Native Hawaiians, and whites: Results from the multiethnic cohort study. *Journal of the American Dietetic Association, 103(9),* 1195-1198.

Sharma, S., Sheehy, T., & Kolonel, L. (2013). Contribution of meat to vitamin B12, iron and zinc intakes in five ethnic groups in the USA: implications for developing food based dietary guidelines. *Journal of Human Nutrition and Dietetics, 26,* 156-168.

Sharma, S., Sheehy, T., & Kolonel, L. (2014). Sources of vegetables, fruits and vitamins A, C and E among five ethnic groups: Results from a multiethnic cohort study. *European Journal of Clinical Nutrition, 68,* 384-391.

Sharma, S., Wilkens, L. R., Shen, L., & Kolonel, L. N. (2013). Dietary sources of five nutrients in ethnic groups represented in the Multiethnic Cohort. *British Journal of Nutrition, 109(8),* 1479-1489.

Shintani, T., Beckham, S., O'Connor, H. K., Hughes, C., & Sato, A. (1994). The Wai'anae Diet Program: a culturally sensitive, community-based obesity and clinical intervention program for the native Hawaiian population. *Hawai'i Medical Journal, 53(5),* 136-141, 147.

Shintani, T., Beckham, S., Tang, J., O'Connor, H. K., & Hughes, C. (1999). Wai'anae Diet Program: Long-Term Follow-up. *Hawai'i Medical Journal, 58,* 117-122.

Shintani, T. T., Hughes, C. K., Beckham, S., & O'Connor, H. K. (1991). Obesity and cardiovascular risk intervention through the ad libitum feeding of traditional Hawaiian diet. *The American Journal of Clinical Nutrition, 53,* 1647S-1651S.

Smith, G. E. (2016). Healthy cognitive aging and dementia prevention. *The American Psychologist, 71(4),* 268-275.

Snowdon, D. A. (1997). Aging and Alzheimer's Disease: Lessons from the Nun Study. *The Gerontologist, 37(2),* 150-156.

Spradley, J. P. (1979). *The Ethnographic Interview*. New York: Holt, Rinehart, and Winston.

Steinbrecher, A., Morimoto, Y., Heak, S., Ollberding, N. J., Geller, K. S., Grandinetti, A., Kolonel, L. N., & Maskarinec, G. (2011). The preventable proportion of type 2 diabetes by ethnicity: The Multiethnic Cohort. *Annals of Epidemiology, 21(7),* 526-535.

Suapaia, M. (2017). *Complementary and alternative medicine use by Native Hawaiians and Part-Hawaiians with Type 2 Diabetes: A Feasibility Study* (Unpublished doctoral dissertation). University of Hawai'i at Mānoa: Honolulu, Hawai'i.

Tkatch, R., Musich, S., Macleod, S., Kraemer, S., Hawkins, K., Wicker, E. R., & Armstrong, D. G. (2017). A qualitative study to examine older adults' perceptions of health: Keys to aging successfully. *Geriatric Nursing, 38,* 485-490.

U.S. Census Bureau. (2010). *Geography: 2010 Census Urban Area FAQs*. Retrieved from www.census.gov/geo/reference/ua/uafaq.html

U.S. Census Bureau. (2012). *2010 Census Briefs. The Native Hawaiian and Other Pacific*

Islander Population: 2010. Retrieved from https://www.census.gov/prod/cen2010/briefs/c2010br-12.pdf

U.S. Department of Agriculture; Department of Health and Human Services. National Agricultural Library. (n.d.). *Dietary Guidelines for Americans 2015-2020.* Retrieved from www.nal.usda.gov.

U.S. Department of Agriculture; Department of Health and Human Services. (n.d.). *A Brief History of USDA Food Guides.* Retrieved from www.myplate.gov.

U.S. Department of Health and Human Services. HRSA. Federal Office of Rural Health Policy. (2015, November). Retrieved from www.hrsa.gov/ruralhealth/aboutus/definition.html

Wilcox, S., Sharkey, J. R., Mathews, A. E., Laditka, J. N., Laditka, S. B., Logsdon, R. G., Willcox, B. J., Willcox, C., & Suzuki, M. (2001). *The Okinawa Program*. New York: Three Rivers Press.

Wong, K. A. & Kataoka-Yahiro, M. (2017). Nutrition and Diet as it Relates to Health and Well-Being of Native Hawaiian Kūpuna (Elders): A Systematic Literature Review. *Journal of Transcultural Nursing, 28(4),* 408-422.

Wu, Y., Braun, K., Onaka, A. T., Horiuchi, B. Y., Tottori, C. J., & Wilkens, L. (2017). Life expectancies in Hawai‘i: A multi-ethnic analysis of 2010 life tables. *Hawai‘i Journal of Medicine & Health, 76(1),* 9-14.

Yancura, L. A. (2013). Justification for caregiving in White, Asian American, and Native Hawaiian grandparents raising grandchildren. *Journals of Gerontology Series B: Psychological Sciences and Social Sciences, 68(1),* 139-144.

Zisberg, A., Gur-Yaish, N., & Shochat, T. (2009). Contribution of routine to sleep quality in community elderly. *Sleep, 33(4),* 509-514.

APPENDICES

Table A1
NUTRITION: 6 Articles

	REFERENCE	DESIGN/ METHOD	PURPOSE OF STUDY	THEORY/ FRAMEWORK	SAMPLE	RELATED MEASURE(S)	SALIENT FINDINGS
1	Park, S., Murphy, S. P., Martin, C. L., & Kolonel, L. N. (2008). Nutrient intake from multivitamin/mineral supplements is similar among users from five ethnic groups: The Multiethnic Cohort Study. *Journal of the American Dietetic Association, 108,* 529-533.	Quantitative	To examine multivitamin/ mineral supplement use among five ethnic groups.	No theory/framework mentioned.	>215,000 participants in the Multiethnic Cohort Study. 159,017 participants included in this study Age range: 45-75 Gender: Males and Females Ethnicity: Native Hawaiians, Japanese, African American, Latinos, Whites	Baseline Questionnaire	*Findings/ Conclusion:* 50% of the participants use multivitamins. The lowest use of multivitamins is in Native Hawaiians. *Recommendations/ Implications:* Further research should look at other regions and age groups. Also, assessment of total nutrient intake via food consumption should take place.

2	Park, S., Murphy, S. P., Wilkens, L. R., Yamamoto, J. F., Sharma, S., Hankin, J. H., Henderson, B. E., & Kolonel, L. N. (2005). Dietary patterns using the food guide pyramid groups are associated with sociodemographic and lifestyle factors: The Multiethnic Cohort Study. *The Journal of Nutrition, 135(4),* 843-849.	Quantitative	To assess dietary patterns and association with disease risks.	No theory/framework mentioned.	>215,000 participants in the Multiethnic Cohort Study. >100,000 participants included in this study Age range: 45-75 y/o Gender: Males and Females Ethnicity: Native Hawaiians, Japanese, White	Baseline questionnaire; Food frequency questionnaire (FFQ)	*Findings/ Conclusion:* Three dietary patterns were examined: "fat and meat", "vegetables", and "fruit and milk". FAT and MEAT were significantly associated with BMI greater than 30 and smokers. Physical activity was positively associated with the "Vegetables" diet. *Recommendations/ Implications:* Consider sociocultural, demographic, and other lifestyle factors that may impact dietary patterns and dietary modification.

3	Sharma, S., Murphy, S. P., Wilkens, L. R., Shen, L., Hankin, J. H., Henderson, B., & Kolonel, L. N. (2003). Adherence to the food guide pyramid recommendations among Japanese Americans, Native Hawaiians, and whites: Results from the Multiethnic Cohort Study. *Journal of the American Dietetic Association, 103(9),* 1195-1198.	Quantitative	To evaluate adherence to the food guide pyramid recommendations for Native Hawaiians, Japanese, and Whites in the Multi-ethnic Cohort Study.	No theory/framework mentioned.	>215,000 participants in the Multiethnic Cohort Study. >100,000 participants included in this study Age range: 45-75 y/o Gender: Males and Females Ethnicity: Native Hawaiians, Japanese, White	Food frequency questionnaire (FFQ)	*Findings/ Conclusions:* Data was presented based on ethnicity, gender, and energy intake. For participants consuming <1600 kcal/day, they were not meeting the recommended servings (i.e. dairy, fruit). For those consuming >2800 kcal/day met more of the recommended servings. *Recommendations/ Implications:* Encourage data on ethnic minority groups be considered to improve the U.S. diet and for the revision of the Food Guide Pyramid.

4	Sharma, S., Sheehy, T., & Kolonel, L. (2014). Sources of vegetables, fruits and vitamins A, C and E among five ethnic groups: Results from a multiethnic cohort study. *European Journal of Clinical Nutrition, 68,* 384-391.	Quantitative	Determine the main sources of fruit, vegetables, and vitamins A, C, and E for five ethnic groups.	No theory/framework mentioned.	>215,000 participants in the Multiethnic Cohort Study. 186,916 participants included in this study. Age range: 45-75 Gender: Males and Females Ethnicity: Native Hawaiians, Japanese, African American, Latinos, Whites	Food frequency questionnaire (FFQ)	*Findings/ Conclusion:* The average number of servings of vegetables highest among Native Hawaiians. Native Hawaiians had the lowest adherence levels with fruit intake recommendations. *Recommendations/ Implications:* Developing and implementing health programs with ethnicity-specific nutrition education may be helpful. Recommendation for more recent data.

5	Sharma, S., Sheehy, T., & Kolonel, L. (2013). Contribution of meat to vitamin B12, iron and zinc intakes in five ethnic groups in the USA: implications for developing food based dietary guidelines. *Journal of Human Nutrition and Dietetics, 26,* 156-168.	Quantitative	Describe the meat sources and the contribution to vitamin B12, iron, and zinc in five ethnic groups.	No theory/framework mentioned.	>215,000 participants in the Multiethnic Cohort Study. >100,000 participants included in this study Age range: 45-75 y/o Gender: Males and Females Ethnicity: Native Hawaiians, Japanese, White	Food frequency questionnaire (FFQ)	*Findings/ Conclusion:* Poultry was the top consumed meat product among Native Hawaiians and the four other ethnic groups. *Recommendations/ Implications:* Findings may help to developing and implementing health programs with ethnicity-specific dietary education regarding meat consumption.

6	Sharma, S., Wilkens, L. R., Shen, L., & Kolonel, L. N. (2013). Dietary sources of five nutrients in ethnic groups represented in the Multiethnic Cohort. *British Journal of Nutrition, 109(8),* 1479-1489.	Quantitative	The objective of the present study was to assess dietary sources of energy, total fat, saturated fat, protein, dietary fiber and added sugar for five ethnic groups.	No theory/framework mentioned.	>215,000 participants in the Multiethnic Cohort Study. >100,000 participants included in this study Age range: 45-75 y/o Gender: Males and Females Ethnicity: Native Hawaiians, Japanese, White	Food frequency questionnaire (FFQ)	*Findings/ Conclusion:* The top two food sources of dietary fiber were bread and cereals (18.1% for Native Hawaiian women). Chicken/turkey dishes and fish were top food sources for dietary protein for Native Hawaiians. *Recommendations/ Implications:* Developing nutritional guidelines that are ethnicity-specific.

Table A2
DIET: 5 Articles

	REFERENCE	DESIGN METHOD	PURPOSE OF STUDY	THEORY	SAMPLE	RELATED MEASURE(S)	SALIENT FINDINGS
1	Hughes, C. K. (2001). Uli'eo Koa-Warrior Preparedness. *Pacific Health Dialog, 8(2),* 393-400.	Quantitative	To study the spiritual and physiological changes that will occur in active Native Hawaiians participating in the Uli'eo Koa program.	No theory/ framework mentioned.	16 Uli'eo Koa participants Age range: 23-64 y/o Gender: 12 Males and 4 Females Ethnicity: Native Hawaiians	Three Phases: Phase I=24-hr dietary recall (Day 1), daily meal analyses and nutrient intakes, exercise (used the Food Processor Nutrition Analysis and Fitness Software Version 7.0) Phase II= independent meals with no meal analyses and nutrient intakes, exercise. Phase III= Follow up 24-hour dietary recall	*Findings/ Conclusion:* The overall health of participants improved. The areas of improvement were: muscle strength, fitness, flexibility, weight, BMI, other physiological factors. *Recommendations/ Implications:* Future research should include a control group. The combination of diet and exercise with emphasis on a traditional Hawaiian approach should be implemented again.

2	Leslie, J. H. (2001). Uli'eo Koa program. Incorporating a traditional Hawaiian dietary component. *Pacific Health Dialog, 8(2),* 401-406.	Quantitative	To discuss development and implementation of the Uli'eo Koa Program.	No theory/ framework mentioned.	16 total participants Age range: 22-64 y/o Gender: 12 Males and 4 Females Ethnicity: Native Hawaiians	Three Phases: Phase I=24-hr dietary recall (Day 1), daily meal analyses and nutrient intakes, exercise (used the Food Processor Nutrition Analysis and Fitness Software Version 7.0) Phase II= independent meals with no meal analyses and nutrient intakes, exercise. Phase III= Follow up 24-hour dietary recall	*Findings/ Conclusion:* Overall dietary habits improved from baseline to Phase II. Participants increased consumption of milk, vegetables, whole grains, and fruits. Participants began eating breakfast regularly and increased fruit and vegetables to 10+ servings/day from zero. *Recommendations/ Implications:* Further study and analysis of nutrient intake and exercise, food practices and choices would be encouraged.

3	Shintani, T., Beckham, S., O'Connor, H. K., Hughes, C., & Sato, A. (1994). The Wai'anae Diet Program: a culturally sensitive, community-based obesity and clinical intervention program for the native Hawaiian population. *Hawai'i Medical Journal, 53(5),* 136-141, 147.	Program Evaluation	To provide information on the history and implementation of the Wai'anae diet program.	No theory/ framework mentioned.	Age range: not given. 120 participants through formal program by June 1993 and hundreds more utilized the program by forming their own groups. Gender: Males and Females Ethnicity: Native Hawaiians	3-week implementation of the Hawaiian diet under medical monitoring, education sessions, and follow-up sessions	*Findings/ Conclusion:* The Wai'anae diet program was based on 8 concepts: 1) non-calorie-restricted obesity protocol 2) dietary clinical intervention 3) cultural sensitivity 4) transition diet 5) whole-person approach 6) group ohana support 7) community-wide intervention 8) role modeling *Recommendations/ Implications:* The Wai'anae diet plan has captured the interest of Native Hawaiians regarding diet and lifestyle changes. The short-term results were significant with weight reduction, serum glucose, serum lipids, and blood pressure.

4	Shintani, T. T., Hughes, C. K., Beckham, S., & O'Connor, H. K. (1991). Obesity and cardiovascular risk intervention through the ad libitum feeding of traditional Hawaiian diet. *The American Journal of Clinical Nutrition, 53,* 1647S-1651S.	Quantitative	To describe the Wai'anae Diet program and the implementation to assess effects on obesity and cardiovascular and risk factors.	No theory/ framework mentioned.	20 participants Age range: 25-64 y/o Gender: 10 Males and 10 Females Ethnicity: Native Hawaiians	History and physical exam by MD, 3-day diet record, 21-day pre-Western-contact Hawaiian diet	*Findings/ Conclusion:* The participants experienced weight loss, decrease in cholesterol, decrease blood pressure, and a decrease in average energy intake. *Recommendations/ Implications:* Future research is recommended to study the long-term efficacy, satiety levels, the social support role, fasting serum glucose in control of diabetes, etc.

5	Shintani, T., Beckham, S., Tang, J., O'Connor, H. K., & Hughes, C. (1999). Wai'anae Diet Program: Long-Term Follow-up. *Hawai'i Medical Journal, 58,* 117-122.	Quantitative	Present an analysis of a long-term follow-up with participants from the Wai'anae Diet Program.	No theory/ framework mentioned.	82 participants Age range: Not mentioned for this long term follow-up study 24-64 y/o at the time of participation in original intervention/study Gender: Males and Females Ethnicity: Native Hawaiians	Weight; Face-to-face Interview (focused on knowledge, attitudes, behavior); Health Assessment	*Findings/ Conclusion:* In this long-term follow-up, the overall average weight loss was 15 pounds. *Recommendations/ Implications:* Future research should include a control group and long-term follow-up should occur closer to the end of the program to include more participants. The Wai'anae Diet Program may be considered "an effective long-term weight loss intervention and warrants further study."

Table C3
HEALTH as it relates to NUTRITION and DIET: 18 Articles

	REFERENCE	DESIGN/ METHOD	PURPOSE OF STUDY	THEORY/ FRAMEWORK	SAMPLE	RELATED MEASURE(S)	SALIENT FINDINGS
1	Albright, C. L., Steffen, A., Wilkens, L. R., Henderson, B. E., & Kolonel, L. N. (2007). Body mass index in monoracial and multiracial adults: results from the multiethnic cohort study. *Ethnicity & Disease, 17,* 268-273.	Quantitative	To examine if there are variations to BMI based on ethnic admixture.	No theory/framework mentioned.	>215,000 participants in the Multiethnic Cohort Study. Age range: 45-75 y/o Gender: Males and Females Ethnicity: Native Hawaiians, Black, Japanese, Latino, White; Asian category	Multiethnic Cohort baseline questionnaire with demographic information, medical conditions, anthropometric measures, lifestyle factors, and FFQ	*Findings/ Conclusion:* Mean BMI varied with Asian Americans with low BMI and Native Hawaiians with high BMI. Ethnic admixtures had similar mean average BMI levels to monoracial groups. Ethnic admixtures including Native Hawaiians had higher BMI levels than other ethnic admixtures. *Recommendations/ Implications:* Analyze health risk data by ethnic admixtures to identify health disparities in these groups.

2	Aluli, N. E., Jones, K. L., Reyes, P. W., Brady, S. K., Tsark, J. U., & Howard, B. V. (2009). Diabetes and cardiovascular risk factors in Native Hawaiians. *Hawai'i Medical Journal, 68(7),* 152-157.	Quantitative	To identify and present data on cardiovascular disease risk factors, diabetes, and impaired fasting glucose as it relates to Native Hawaiians.	No theory/framework mentioned.	862 participants from the CRC program (cardiovascular risk clinics screening program implemented by Na Pu'uwai-the Native Hawaiian health care system on Moloka'i) Age range: 19-88 y/o Gender: Males and Females Ethnicity: Native Hawaiians	Baseline questionnaire to assess behavioral risk factors, anthropometric measurements (ht/wt/ waist-hip circumference), urine test, cholesterol testing, glucose testing, A1C	*Findings/ Conclusion:* 24% Native Hawaiian men and 21% Native Hawaiian women had diabetes. Diabetes and IFG increases with age and in men. If participants had diabetes, they also had an increase in hypertension and elevated TGs and LDL-C. *Recommendations/ Implications:* Diabetes prevention programs that target weight control and physical activity should be implemented throughout Hawai'i.

3	Erber, E., Hopping, B. N., Grandinetti, A., Park, S., Kolonel, L. N., & Maskarinec, G. (2010). Dietary patterns and risk for diabetes. *Diabetes Care, 33*, 532-538.	Quantitative	To examine the three dietary patterns on diabetes risk in participants from the Multiethnic Cohort Study.	No theory/ framework mentioned.	>215,000 participants in the Multiethnic Cohort Study. >100,000 participants included in this study Age range: 45-75 Gender: Males and Females Ethnicity: Native Hawaiians, Japanese, White	Food frequency questionnaire (FFQ)	*Findings/ Conclusions:* Three dietary patterns were examined: "fat and meat", "vegetables", and "fruit and milk". FAT and MEAT were significantly associated with diabetes risk in men and women. Vegetables decreased diabetes risk for men, but not for women. Fruit and milk were more beneficial for women than men. *Recommendations/ Implications:* Further understanding of dietary patterns and diabetes risk will lead to developing prevention strategies.

4	Grandinetti, A., Kaholokula, J. K., Chang, H. K., Chen, R., Rodriguez, B. L., Melish, J. S., & Curb, J. D. (2002). Relationship between plasma glucose concentrations and Native Hawaiian Ancestry: The Native Hawaiian Health Research Project. *International Journal of Obesity, 26,* 778-782.	Quantitative	To study the relationship between 2-hour glucose levels and fasting glucose levels in Native Hawaiians and those with ethnic admixture.	No theory/framework mentioned.	578 participants in two rural communities b/w 1993-1996 Age range: 30+ y/o Gender: Males and Females Ethnicity: Native Hawaiians	Brief genealogical interview, Fasting and 2h post glucose measurements, anthropometric measurements (ht, wt, waist/hip circumferences), Questionnaires of self-report relating to diet, exercise, and medical history (FFQ, modified version of the Pima Physical Activity Questionnaire)	*Findings/ Conclusion:* Increased Hawaiian blood quantum was significantly associated with elevated BMI, waist-to-hip ratio, age, and increased fasting glucose concentrations. Two-hour glucose concentrations were not associated with Hawaiian ancestry. *Recommendations/ Implications:* Further larger studies addressing glucose and insulin measurements looking at insulin resistance and beta-cell function on ethnic populations in Hawai‘i currently in progress.

5	Juarez, D. T., Davis, J. W., Brady, S. K., & Chung, R. S. (2012). Prevalence of heart disease and its risk factors related to age in Asians, Pacific Islanders, and Whites in Hawai'i. *Journal of Health Care for the Poor and Underserved, 23,* 1000-1010.	Quantitative: retrospective observational study	To study disparities in the prevalence of disease as it relates to race/ethnicity and age.	No theory/ framework mentioned.	100,000 members annually (2002-2009) from largest insurer in Hawai'i with 40-50% survey response rate Age range: Mean age=69 for those with heart disease; Mean age=63 for those with diabetes, Mean age=59 for those with hyperlipidemia Gender: Males and Females Ethnicity: Hawaiian/Part Hawaiian, Filipino, Japanese, Chinese, Korean, White	Administrative data from large health plan in HI Self-reported data from HI behavioral risk factor surveillance survey (BRFSS)	*Findings/ Conclusions:* Filipinos and Native Hawaiians had the highest rates of diabetes and hypertension. Asians had highest rates of hyperlipidemia. Whites had lowest risk factors but equal risk of heart disease. Risk factor prevalence present at age 30 and heart disease prevalence at age 40. *Recommendations/ Implications:* Education needs to start in early adulthood.

6	Kaholokula, J. K., Saito, E., Mau, M. K., Latimer, R., & Seto, T. B. (2008). Pacific islanders' perspective on heart failure management. *Patient Education and Counseling, 70,* 281-291.	Qualitative	To identify the health practices, attitudes, beliefs, and social/family relations as it relates to heart failure treatment among Pacific Islanders.	Health behavior change models utilized in developing questions for the focus groups and in the data interpretation.	36 patients with heart failure and family caregivers (30% patients, 70% caregivers, 55% female patients, 84% female caregivers) Age range: 65.9 +/- 13.2 y/o Gender: Males and females Ethnicity: Hawaiian and Samoan	4 Focus groups: 2 focus groups conducted with Native Hawaiians from a homestead (n=17), 1 focus group with Samoans from an urban community health center (n=7), and 1 focus group mixed with Native Hawaiians and Samoans (n=12)	*Findings/ Conclusion:* Native Hawaiians and Samoans experience greater heart failure burden that Asians or Whites. Native Hawaiians preferred traditional healing methods vs. Samoans who preferred MD. Building capacity for caregivers to help improve doctor-patient relations and respite care is important. *Recommendations/ Implications:* Focusing on diet, medications, weight, symptom management may help to improve outcomes/ interventions for Pacific Islanders with heart failure.

7	Kaholokula, J. K., Townsend, C. K. M., Ige, A., Sinclair, K. A., Mau, M. K., Leake, A., Palakiko, D., Yoshimura, Kekauoha, P., & Hughes, C. (2013). Sociodemographic, behavioral, and biologic variables related to weight loss in Native Hawaiians and other pacific islanders. *Obesity, 21(3),* E196-E202.	Quantitative: RCT and CBPR	To assess sociodemographic, behavioral, and biologic factors that relate to 3% or greater weight loss for NH/PI part of a lifestyle intervention.	No theory/framework mentioned.	100 participants from the Partnership for Improving Lifestyle Intervention (PILI) 'Ohana Project Age range: 18+ y/o Gender: Males and Females Ethnicity: Native Hawaiians, Chuukese, Filipino, Other Pacific Islanders	Clinical measures, 6-min walk test, physical activity Questionnaire, Eating Habits Questionnaire	*Findings/ Conclusion:* There were great differences in weight loss between participants. The Chuukese participants met the weight loss goals of the program and the Native Hawaiians did not. Acculturation status between the indigenous Native Hawaiians and the immigrant Pacific islanders and other sociocultural factors may play a role in the results. *Recommendations/ Implications:* Greater weight loss in the beginning of a program may lead to long-term weight loss.

8	Kim, H., Park, S., Grandinetti, A., Holck, P. S., & Waslien, C. (2008). Major dietary patterns, ethnicity, and prevalence of type 2 diabetes in rural Hawai'i. *Nutrition, 24,* 1065-1072.	Quantitative	To study the relationship between ethnicity, type 2 diabetes, and overall dietary pattern.	No theory/ framework mentioned.	1257 participants in North Kohala, Hawai'i Age range: 18-95 y/o Gender: Males and Females Ethnicity: Native Hawaiian, Filipino, Japanese, White	Food frequency Questionnaire (FFQ)	*Findings/ Conclusions:* A diet with animal foods and local ethnic dishes had a positive association with type 2 diabetes vs. a diet of frequent veggies and fruits vs. a Western diet. However, ethnicity was a stronger risk factor than dietary patterns for type 2 diabetes. *Recommendations/ Implications:* Decreasing energy intake during health promotion for a multiethnic population may help to prevent type 2 diabetes.

9	Lee, R., Onopa, J., Mau, M. K., & Seto, T. (2010). Diabetes care in a predominantly Native Hawaiian and pacific islander outpatient population. *Hawai'i Medical Journal, 69(Suppl 2), 28-30.*	Quantitative	Evaluate diabetes care provided at a multispecialty, hospital-based clinic serving an underserved population with the use of national standards of care.	No theory/framework mentioned.	364 patients at the Queen Emma Clinics located at the Queen's Medical Center Age range: 50 (+/-) 13 y/o Gender: Males and Females Ethnicity: Pacific Islanders (58%), Native Hawaiians (17%), Asians (15%), White (10%)	Demographic and clinical information (lab tests, medications) from medical record. Eight performance measures from the National Diabetes Quality Improvement Alliance: 1) Hemoglobin A1c >/= 9.0% (poor control), 2) Annual lipid panel checked, 3) Systolic blood pressure less than 140mmHg, 4) LDL cholesterol <130mg/dL, 5) Annual fundoscopic exam, 6) foot exam, 7) Aspirin use, 8) annual evaluation for urine protein	*Findings/ Conclusion:* Overall, diabetes care for underserved patients is similar to national benchmarks. Pacific Islanders and Native Hawaiians have poorer blood glucose control than Caucasians. *Recommendations/ Implications:* Encourage focus on blood glucose control, blood pressure management, and other clinical measures for patients.

10	Maskarinec, G., Carlin, L., Pagano, I., Yamamoto, J., Shumay, D., Wilkens, L. R., & Kolonel, L. N. (2007). Lifestyle risk factors for chronic disease in a multiethnic population: An analysis of two prospective studies over a 20-year period. *Ethnicity & Disease, 17(4),* 596-603.	Quantitative	To analyze two prospective studies over a 20-year period and look at risk factors and disease risk among different ethnic groups.	No theory/framework mentioned.	Two cohorts: 19,319 participants from the Hawaii Health Surveillance Program Cohort (HHSPC) and 97,746 participants from the Multiethnic Cohort Age range: 40+ y/o Gender: Males and Females Ethnicity: Native Hawaiians, Japanese, Chinese, Filipino, White	Face-to-face interviews, survey by the Hawai'i Dept. of Health questionnaire, short dietary questionnaire, Multiethnic Cohort Questionnaire	*Findings/ Conclusion:* Chronic Disease Risk Index (CDRI) was decreased for males and females over time. Also, Native Hawaiians, Whites, and men had higher CDRI scores than women and the other ethnic groups. *Recommendations/ Implications:* Education regarding lifestyle factors needs to be tailored to the groups at high risk.

11	Maskarinec, G., Grandinetti, A., Matsuura, G., Sharma, S., Mau, M., Henderson, B. E., & Kolonel, L. N. (2009). Diabetes prevalence and body mass index differ by ethnicity: The Multiethnic Cohort. *Ethnicity & Disease, 19(1),* 49-55.	Quantitative	To estimate the prevalence of diabetes and study the relationship between self-reported diabetes to BMI.	No theory/framework mentioned.	187,439 participants in the Multiethnic Cohort Study. Age range: 45-75 y/o Gender: Males and Females Ethnicity: Native Hawaiians, Japanese, African American, Latino, White	Multiethnic Cohort Baseline questionnaire & FFQ	*Findings/ Conclusion:* Diabetes prevalence among Native Hawaiians, African-Americans, Latinos, and Japanese vs. Whites was the most "noteworthy finding" in the study. *Recommendations/ Implications:* Future diabetes research that focuses on genetics, body fat distribution, and etiology in the minority groups is warranted.

12	Maskarinec, G., Takata, Y., Pagano, I., Carlin, L., Goodman, M. T., Le Marchand, L., Nomura, A. M. Y., Wilkens, L. R., & Kolonel, L. N. (2006). Trends and dietary determinants of overweight and obesity in a multiethnic population. *Obesity, 14(4),* 717-726.	Quantitative	To describe BMI trends in different ethnic groups in Hawai'i and study the relationship between food intake and nutrients with excess weight.	No theory/framework mentioned.	159,683 participants of 18 Hawai'i population-based epidemiological studies over 25 years Age range: Not specified Gender: Males and Females Ethnicity: Native Hawaiians, Japanese, White, Others	Food frequency questionnaire (FFQ)	*Findings/ Conclusion:* Obesity was higher in men, Native Hawaiians, past smokers, U.S. born individuals, and married men. People with Chinese ancestry were least likely to be overweight. *Recommendations/ Implications:* "Nutritional determinants of excess weight are very similar among whites, Japanese, and Native Hawaiians." In planning nutritional interventions, decreasing animal products and increasing plant-based foods may help to address obesity.

13	Mau, M. K., Glanz, K., Severino, R., Grove, J. S., Johnson, B., & Curb, J. D. (2001). Mediators of lifestyle behavior change in Native Hawaiians: Initial findings from the Native Hawaiian Diabetes Intervention Program. *Diabetes Care, 24(10),* 1770-1775.	Quantitative	To explore stage of change with diet and exercise behaviors with implementation of a lifestyle intervention.	Transtheoretical Model and Stages of Change Model	147 participants from West Kauai community and North Kohala community Age range: 30+ y/o Gender: Males and Females Ethnicity: Native Hawaiians	Clinical measurements, Questionnaires (semiquantitative FFQ, Modified Activity Questionnaire, questionnaire to assess dietary stage of change, questionnaire to assess exercise stage of change)	*Findings/ Conclusion:* Native Hawaiians who were part of the 'ohana support group (Kauai community) showed improvement with stage of change and positive dietary and exercise behaviors vs. the standard group (North Kohala community) *Recommendations/ Implications:* Encourage further research on stage of change with minority populations at risk for diabetes.

14	Mau, M. K., Wong, K. N., Efird, J., West, M., Saito, E. P., & Maddock, J. (2008). Environmental factors of obesity in communities with Native Hawaiians. *Hawai'i Medical Journal, 67(9),* 233-236.	Quantitative	To correlate obesity prevalence with fast food and exercise resources for three communities of Native Hawaiians.	No theory/framework mentioned.	Number of participants not provided Age range: Not specified Gender: Males and Females Ethnicity: Native Hawaiians	Assessments of food resources done with standardized forms	*Findings/ Conclusion:* The results concur with previous literature that identifies minority communities have less exercise resources and high use of fast food outlets. *Recommendations/ Implications:* Health policy development focused on building environments that foster healthy lifestyle practices, increase exercise resources, and decrease obesogenic environmental factors would be helpful for Native Hawaiians.

15	McEligot, A. J., McMullin, J., Pang, K., Bone, M., Winston, S., Ngewa, R., & Tanjasiri, S. P. (2012). Dietary intakes, obesity and health behaviors in Native Hawaiians residing in Southern California. *Hawai'i Journal of Medicine & Public Health, 71(5),* 124-128.	Quantitative: CBPR	To study diet, obesity, and health behaviors factors in Native Hawaiians residing in Southern California.	No theory/framework mentioned.	55 Participants residing in Southern California consented to participate Age range: 18+ y/o Gender: Males and Females Ethnicity: Native Hawaiians	Two self-reported sociocultural and demographic Questionnaires, height/weight, 3-24hr dietary recalls via telephone	*Findings/ Conclusion:* 90% of the participants were overweight or obese. Fruit intake had a positive association with healthy food choices. The percent of energy from fat had a negative association with healthy food choices. BMI had a negative association with self-efficacy as it related to exercise. *Recommendations/ Implications:* Future studies should have a larger sample size and have population-based recruitment for generalizability. Education programs focused on culturally-specific diet and weight loss would

16	McEligot, A. J., McMullin, J., Pang, K., Bone, M., Winston, S., Ngewa, R., & Tanjasiri, S. P. (2010). Diet, psychosocial factors related to diet and exercise, and cardiometabolic conditions in Southern Californian Native Hawaiians. *Hawai'i Medical Journal, 69(Suppl 2),* 16-20.	Mixed Method	To study dietary intake, diet, exercise, and psychosocial factors in relation to cardiometabolic disease in Native Hawaiians residing in Southern California.	No theory/framework mentioned.	62 Participants residing in Southern California consented to participate Age range: 21+ y/o Gender: Males and Females Ethnicity: Native Hawaiians	Questionnaire to collect demographic, sociocultural, pre-existing conditions, 24-hr dietary recall, talk story, height/weight	*Findings/ Conclusion:* BMI was checked and 30% were overweight, 57% obese. 72% participants had a pre-existing cardiometabolic condition. 62% had diabetes. Talk story themes included diet and exercise, weight, tension between community vs. individual change, and diseases. *Recommendations/ Implications:* Talk story discussions and psychosocial factors may lead to intervention development to target cardiometabolic disease in Native Hawaiians.

17	Morimoto, Y., Schembre, S. M., Steinbrecher, A., Erber, E., Pagano, I., Grandinetti, A., Kolonel, L. N., & Maskarinec, G. (2011). Ethnic differences in weight gain and diabetes risk: The Multiethnic Cohort Study. *Diabetes & Metabolism, 37,* 230-236.	Quantitative	To improve the understanding of type 2 diabetes risk and excess weight.	No theory/framework mentioned.	>215,000 participants in the Multiethnic Cohort Study. >100,000 included in this study Age range: 45-75 y/o Gender: Males and Females Ethnicity: Native Hawaiians, Japanese, White	Baseline questionnaire, short follow-up questionnaire, Multiethnic Cohort database linked to two HI health plans to identify DM cases	*Findings/ Conclusion:* Weight gain increases diabetes risk. An increase weight of 5-10 kg between the age of 21 and age upon entering the research cohort doubled the risk of diabetes. *Recommendations/ Implications:* Lifestyle interventions for weight loss will decrease the risk of diabetes especially for Japanese and Native Hawaiians.

18	Steinbrecher, A., Morimoto, Y., Heak, S., Ollberding, N. J., Geller, K. S., Grandinetti, A., Kolonel, L. N., & Maskarinec, G. (2011). The preventable proportion of type 2 diabetes by ethnicity: The multiethnic cohort. *Annals of Epidemiology, 21(7),* 526-535.	Quantitative	To study the population-attributable risk (PAR) associated with diabetes risk factors for Japanese Americans, Native Hawaiians, and Caucasians in the Multiethnic Cohort.	No theory/framework mentioned.	From a total of 74,970 cohort participants, 8,559 participants with diabetes by self-report were included Age range: 45-75 y/o Gender: Males and Females Ethnicity: Native Hawaiians, Japanese, White	Baseline Questionnaire: (1) Initial-demographics, diet, lifestyle factors in 1993-1996 (2) Medication based-Food Frequency Questionnaire (FFQ)	*Findings/ Conclusions:* Smoking, high meat intake, physical inactivity, and overweight, were associated with risk of diabetes for the 3 ethnic groups. *Recommendations /Implications:* The study does not support ethnic-specific prevention strategies but rather focus on interventions to address multiple behaviors in all ethnic groups.

Table D4
WELL-BEING as it relates to NUTRITION and DIET: 2 Articles

	REFERENCE	DESIGN METHOD	PURPOSE OF STUDY	THEORY	SAMPLE	RELATED MEASURE(S)	SALIENT FINDINGS
1	Lassetter, J. H. (2011). The integral role of food in native Hawaiian migrants' perceptions of health and well-being. *Journal of Transcultural Nursing, 22(1),* 63-70.	Qualitative	To explore the role of food amongst Native Hawaiians and their perceptions of health and well-being.	No theory/ framework mentioned.	27 Native Hawaiian participants from Las Vegas Age range: 23-62 y/o mean age= 40 Gender: 16 males, 11 females Ethnicity: Native Hawaiian	Semi-structured interviews	*Findings/ Conclusion:* A few participants identified food as "dangerous" and connected to obesity and health risks (overeating-Kanak Attack). In contrast, many participants found Hawaiian-style food associated with alleviating "homesickness". *Recommendations/ Implications:* Nurses should focus on discussing nutrition from a family framework vs. individual framework. Traditional Hawaiian diet programs could be implemented.

2	McMullin, J. (2005). The call to life: revitalizing a healthy Hawaiian identity. *Social Science & Medicine, 61*, 809-820.	Qualitative	To examine what it means to be a "healthy Hawaiian".	No theory/ framework mentioned.	Native Hawaiian participants from Maui, n=17 and Hawai'i=19 Age range: 21-86 y/o mean age= 45.4 Gender: Males and Females Ethnicity: Native Hawaiian	Informal interviews, semi-structured interviews, participant observation	*Findings/ Conclusion:* "The Healthy Ancestor is a source of pride". As Hawaiians revitalize their culture, they revitalize their health. *Recommendations/ Implications:* When identifying concepts of health, it is imbedded in family relations and the land.

APPENDIX B: RECRUITMENT FLYER

2016

You are Invited!

A Focused Ethnographic Study on Nutrition and Diet as it Relates to the Health and Well-being of Native Hawaiian Kūpuna

Are you a Native Hawaiian Kūpuna 65 years and older?

You are invited to participate and share your thoughts about nutrition and diet as it relates to your health and well-being.

What Do I Have To Do?

- **There will be 1- 2 interviews. The first will be in person at a preferred location or your residence. A follow-up interview may be conducted in person or via telephone if necessary.**
- **Participants will receive a $25 Foodland gift card.**

Who Will Be Conducting this Study?

Kamomilani Anduha Wong
MSN, APRN, FNP-BC
UH Mānoa Nursing PhD Student
(808) 772-6825

How Do I Get Involved?

To participate, please notify the *Site Contact Person* and provide your name and phone number. You will be contacted by Kamomilani Anduha Wong, University of Hawai'i at Mānoa Nursing PhD Student.

Appendix C
Research Questions

(1) How would you describe a healthy person?

(2) In your own words, what is the key to good health?

(3) Could you describe your daily routine from the time you wake up to the time you go to sleep?

(4) What kinds of food and beverages have you consumed over the past week?

(5) What are the Native Hawaiian cultural values, practices, and traditions that impact your life and health?

(6) In your own words, what is key to living well?

Code#_____

Appendix D

NATIVE HAWAIIAN KŪPUNA INCLUSION CRITERIA FORM

Directions: Please CIRCLE or FILL IN your response to the 7 items below.

1. Age: Are you 65 years and older? **YES** or **NO**

2. Ethnicity: Are you Native Hawaiian? **YES** or **NO**

3. Do you live on the island of Oahu or the island of Hawai'i?_____

4. Do you live in the community? **YES** or **NO**

5. Are you able to read, write, and speak in English? **YES** or **NO**

6. Are you able to independently understand and sign the consent form? **YES** or **NO**

Mahalo!

Appendix E
CONSENT TO PARTICIPATE IN

FOCUSED ETHNOGRAPHY STUDY OF
NUTRITION AND DIET AS IT RELATES TO THE HEALTH AND WELL-BEING
OF
NATIVE HAWAIIAN KŪPUNA (ELDERS)

Kamomilani Anduha Wong
University of Hawai'i at Mānoa School of Nursing & Dental Hygiene
Webster Hall
Phone: (808)772-6825

Purpose:
To "talk story" and gather information about Native Hawaiian kūpuna and their health and well-being as it relates to nutrition and diet. Interviews and observation of kūpuna in their community/environment will occur based on the island that they reside on (O'ahu or Hawai'i). A follow-up phone call or face-to-face meeting may be held to clarify transcription of key points from the initial meeting.

Benefits:
The results of this research project may help to shed light on what I do in relation to nutrition and diet that directly impacts my health and well-being. Results of the project may help to foster the knowledge to improve the health and well-being with future programs that identify lifestyle and authentic lived experiences of kūpuna living in today's Hawai'i.

Compensation:
I will receive $25.00 Foodland Gift Card for my participation in the project whether or not I complete the study.

Project Description:
During the initial visit, the research project has been explained to me and if I agree to participate, I will sign this consent form. I understand that 1-2 visits (at residence or preferred location) will be scheduled. Each visit may take approximately 2 hours to complete. During the first visit, I understand that I will need to respond to questions in the interview and complete a demographic form and inclusion criteria form. I further understand that I may be asked to participate in a second interview session in person or over the phone to confirm what I have said in the initial interview. I understand that written forms and interview questions will be in English. The interview will be audio-recorded. The project will be completed by December 2017.

Risks: I understand that participating in this research project involves minimal risks that include time spent and sharing knowledge and life experiences. I understand that all

written forms and interview information will be identified by a number rather than by name. I further understand that the results will be used only for this research project and may be published, but any information that could result in my identification will remain confidential to the extent allowed by law.

Voluntary Right to Withdraw: I understand that my participation is voluntary. I understand that I may refuse to participate and withdraw from the project at any time.

If I have any questions, I understand that I can contact Kamomilani Anduha Wong at (808) 772-6825. If I cannot obtain satisfactory answers to my questions, I understand that I can contact the University of Hawai'i, Human Studies Program by phone: (808) 956-5007 and by email at uhirb@hawaii.edu. The University of Hawai'i Human Studies Program has the right to review research records for this study. The audio-tapes will be destroyed at the completion of the study.

I certify that I have read and that I understand the information. I have been given satisfactory answers to my questions concerning the project procedures and that I have been advised that I am free to withdraw my consent and to discontinue participation in the project anytime without prejudice.

I hereby give my consent to participate in this project. I have received a copy of this consent form.

Signature(s) for Consent:

I consent to be audio-recorded for the interview portion of this research.
Please initial next to either: **YES**_____ **NO**_____

I give permission to join the research project entitled,
"Focused Ethnographic Study of Nutrition and Diet as it Relates to the Health and Well-being of Native Hawaiian Kūpuna (Elders)".

Date:_____

Name of Participant (Please Print):_____

Participant's Signature:_____

Signature of the Person Obtaining Consent:_____

Code #:_____

Appendix F
DEMOGRAPHIC INFORMATION
Native Hawaiian Kūpuna 65 years and older Demographic Form

Directions: Please **CIRCLE** or **FILL IN** your response to the 10 items below.

1. Age: _____
2. Are you a Hawai'i State resident? YES or NO
3. What race/ethnicities do you identify with?
   _____
4. Gender: MALE or FEMALE or Prefer Not to Answer
5. What is your current marital status?
   a. Single, never married
   b. Married
   c. Living with significant other
   d. Separated
   e. Divorced
   f. Widowed
6. What is your highest level of education?
   a. Less than high school
   b. High school graduate or equivalent
   c. Some college or technical training beyond high school
   d. College graduate (2yrs, 4yrs, more than 4yrs)
   e. Post-graduate or professional degree
7. What is/was your occupation(s)? _____
8. Number of people in the household?_____
9. Do you own your home, rent, live with family, etc.?_____
10. Please provide your contact phone number:_____

Mahalo!

Appendix G

FIELD NOTES FOR THE FOCUSED ETHNOGRAPHY STUDY OF NUTRITION AND DIET AS IT RELATES TO THE HEALTH AND WELL-BEING OF NATIVE HAWAIIAN KŪPUNA (ELDERS)

Code #_____ Date:_____
Start Time:_____ EndTime:_____
Location:_____

DETAILS & DESCRIPTION INFORMATION:
(setting, action, behavior conversation, etc.)

JOTTINGS:

ANALYSIS:

REFLECTIONS:
(record your thoughts, ideas, questions, and concerns)

Page #_____

APPENDIX H: CODEBOOK

FOCUSED ETHNOGRAPHY STUDY OF NATIVE HAWAIIAN KŪPUNA

OVERARCHING THEME: Kūpuna And Their Thriving Lifestyle

CATEGORY	SUB-CATEGORY	SUB-SUB CATEGORY	SUB-SUB-SUB-CATEGORY	SUB-SUB-SUB-SUB CATEGORY
(1) Healthy Person	Activity	Minimum to No Assistance		
	Balance in Life	Mind and Body		
	Cognition			
	Moderation			
	Not Sick Often	Food		
		Free from Illness		
		Hygiene		
		No Pain		
	Social Interactions	Family & Friends		
(2) Good Health	Concern for Health	Adaptation to Chronic Disease/Illness		
	Monitor	Chronic Disease/Illness		
		Eat, Exercise, Meds		
	Functioning	Ability to Travel		
		Socialize		
		Exercise		
		Caring for Grandchildren		
		Caring for Pets		
		Caring for Self		
	Mind and Body	Minimize Stress		
(3) Daily Routine	Activity	Church		
		Cleaning	Dishes	

CATEGORY	SUB-CATEGORY	SUB-SUB CATEGORY	SUB-SUB-SUB CATEGORY	SUB-SUB-SUB-SUB CATEGORY
			House Cleaning	
			Ironing	
			Laundry	
		Community Service		
		Driving		
		Employment	Part-Time	
		Entertainment	Movies	
			Music	
			Puzzles	
			Reading	
			TV	
		Exercise	Aerobics	
			Golf	
			Sports	
			Swimming	
			Walking	
			Weightlifting	
			Yoga	
		Keeping Up with Current Events	Facebook	
			Newspaper	
			TV	
		Social Interactions	Family	
			Friends	
		Yard Work/Gardening		
	Time	Morning Routine		
		Afternoon Routine		
		Night Routine		
		Weekend Routine	Have a day to relax	

CATEGORY	SUB-CATEGORY	SUB-SUB CATEGORY	SUB-SUB-SUB CATEGORY	SUB-SUB-SUB-SUB CATEGORY
(4) Food Choices/Preferences	Diet	Personal Preference	Castle Medical Center Weight Loss Program	
			Gluten-free	
			Low Salt	
			Ornish Reversal program	
			Vegan	
			Vegetarian	
			Consumption	Order of foods eaten
			Portions	Size
			Who cooks	Individual
				Individual/Spouse
			Who shops	Individual
				Individual/Spouse
	Drinks	Personal preference	Alcohol-beer, wine	
			Coffee	
			Juice	
			Milk	
			Soda	
			Tea	
			Water (regular or alkaline)	
	Foods	Personal preference	Vegetables	
			Fruits	
			Grains	
			Dairy	
			Protein	
			Desserts/Snacks	
			Other: canned foods	

CATEGORY	SUB-CATEGORY	SUB-SUB CATEGORY	SUB-SUB-SUB CATEGORY	SUB-SUB-SUB-SUB CATEGORY
			Other: sandwiches	
			No red meat	
			No dairy	
			No rice	
			No white bread	
			No salt	
			No sugar	
(5) Native Hawaiian Cultural Values, Traditions, and Practices	Cultural Values	Connection to Place	Food	fern
				poi
				red opae (fresh water shrimp)
				taro
			Land	
			Ocean	
		Do not take more than you can eat in nature	Fish	
			Opihi (limpet)	
		Family Bonding	Care for Others	
		Pono		
		Respect	Others	
		Humility		
		Sharing knowledge with others & pass on	Mo‘opuna (grandchildren)	
			Others	
		Spirituality		
		True to Self		

CATEGORY	SUB-CATEGORY	SUB-SUB CATEGORY	SUB-SUB-SUB CATEGORY	SUB-SUB-SUB-SUB CATEGORY
		Work Ethic		
	Cultural Traditions	Arts & Crafts	Board and Stone	
			Lauhala	
		Chanting		
		Family Gathering	Baby luau	
			Death Anniversary	
			Family reunion	
			Funeral	
			Graveyard visits	
			Holidays	Makahiki
				New Year
			Parties	
		Food	Hawaiian food	fish
				lau lau
				poi
				red opae (fresh water shrimp)
				wana (sea urchin)
		Gardening		
		Hula		
		Language		
		Music		
	Cultural Practices	CAM	Oils	castor oil
				cod liver oil
				eucalyptus oil
			Teas	koʻokoʻolau tea
				mamaki tea
			Herbs/Plants	guava shoots
				pōpolo berry plant

CATEGORY	SUB-CATEGORY	SUB-SUB CATEGORY	SUB-SUB-SUB CATEGORY	SUB-SUB-SUB-SUB CATEGORY
				'uhaloa
			Modalities	deep breathing
				massage
				meditation
				prayer
				humor/laughter
(6) Key to Living Well	Acceptance	Love	Family & Friends	
			Self	
	Decrease Stress			
	Faith	Belief	in God	
		Blessings		
		Purpose		
	Holistic View of Living Well			
	Resilience	Remember the struggle – how you got there		
	Sense of Independence	Do for self		
	Thinking Positive	Happy	Think Wellness	
	Thriving	Enjoy Life		
		Will to Live		